



FLIGHT



First Aero Weekly in the World.

Founder and Editor : STANLEY SPOONER.

A Journal devoted to the Interests, Practice and Progress of Aerial Locomotion and Transport.
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EDITORIAL COMMENT.

 IN conformity with the promise of the Prime Minister, a day is to be given shortly—either during the present or next week—for the discussion in Parliament of matters affecting the Air Services, and in particular the relations between the Air Board and the Admiralty. In the meantime

"Our Political Correspondent" has been busy in the dailies with the pros and cons of the question, without, it must be said, shedding much in the way of new light on a vexed situation. The principal thing that emerges is that there undoubtedly exists a very strong feeling that in Mr. Balfour we do not possess the ideal First Lord, and that the sooner a change is made in favour of a younger and more virile statesman, the better it will be for the administration of the Admiralty and for our chances of early victory in the war.

Without going into the question of the merits of the present First Lord in relation to his administra-

tion of the Admiralty as a whole, it certainly does seem to us that his attitude in regard to the Air Service leaves a great deal to be desired. And as we conceive supremacy in the air to be a vital consideration, there does not appear to be any necessity to go beyond this part of the whole question in order to be able to arrive at a decision. If it can be shown that under Mr. Balfour's administration we have allowed any single branch of the Naval service to fall short of a state of the highest efficiency, then it is time a change was made, and that instantly.

Let us regard the present situation, so far as it is known in the light of what has been allowed to transpire. According to the *Daily Mail's* Parliamentary correspondent, matters as between the Air Board and the Admiralty have reached a condition of absolute deadlock. As the correspondent says, the Air Board was formed to overcome jealousies between the two Services which threatened the efficiency of both. One of its chief duties was understood to be the decision of the number of new machines to be delivered to each, having regard to the relative urgency of their requirements. The Admiralty flatly declined to accept the Board's decisions, and claimed the right to order machines and material irrespective of any orders the Board might give. As a result of the friction that inevitably arose as a consequence, the Air Board demanded from the War Council full powers to enforce its decisions. That was over eight weeks ago. The War Council sent on the report of the Board to Mr. Balfour for comment, and it is understood that his reply was a practically direct refusal to agree to the demands of the Board. Assuming that this is correct, obviously the War Council is faced with the problem of deciding between Mr. Balfour and the Air Board. Apparently, since the matter is at least eight weeks old, the policy pursued has once again been that of "Wait and See." And, despite the fact that we are at war, that policy looks like being persisted in for at least another week at a time when days, even hours, are of untold value.

What is at the back of the Admiralty attitude? Is it Mr. Balfour who is primarily to blame, and if not, who is the stumbling block? Of course, whoever or whatever is at fault, it is the First Lord who must shoulder the responsibility for the lapses of his own department. If he himself is at fault then he must give place to someone else with a wider outlook and

greater virility in administration. If it is in fact his advisers who are at fault, the responsibility is equally his by reason of the fact that he has chosen them wrongly and continued them in their posts after they have been found wanting. Naturally, we do not expect the First Lord to come down to the House and admit that his administration has been wanting in the necessary ability, but by this time he should certainly have realised that the country is profoundly dissatisfied and insists on change or satisfactory explanation. One or other of these eventualities is bound to come about, and of the two we prefer the former. Matters have gone too far and Parliament and the country have been treated with too cynical a contempt to allow of explanation being an entirely satisfactory solution of the question.

For our own part, we are inclined to the opinion that the Admiralty attitude of impossibility towards the Air Board lies not so much at the door of the First Lord as at that of his advisers. In matters of technical administration such as are involved in the present case, a civilian First Lord, even though he be a distinguished philosopher and a brilliant musician, is, and must be, almost entirely in the hands of those whom he has appointed to advise him. Unless matters of high politics are involved he must accept their opinions at their face value. When he ceases to do that they must either resign or, alternatively, receive their dismissal at his hands. It may be unfortunate for him or for them, as the case may be, but that is the position when it is brought down to bed-rock.

It is very little more than a year ago that the R.N.A.S. was "reorganised." Ostensibly it was necessary, the Service having grown to dimensions, since the outbreak of the war, that rendered reorganisation essential. There has been a great deal of talk about this reorganisation, and it has been said that the lines along which it has been effected have been mainly in the direction of "navalising" the Air Service, rather than to mould it into a more or less elastic service fit for the purposes of war. In a word, it is openly talked of that the reorganisation has taken the shape of a rigorous insistence on the forms and routine of the Royal Navy more than that of the creation of an effective fighting service which, in the nature of things, cannot be brought absolutely into line with Naval customs and traditions in the time available, except at the cost of a serious loss in efficiency. Not to put too fine a point upon it, the reorganisation has not been the success it was expected to be, and for the reasons thus briefly set forth. Let it be understood that there is no reflection whatever implied in this on the R.N.A.S. The fault, if fault there be, is at the top. It is a distasteful task to criticise those who have no opportunity of reply, but we are at war, and in such a time as this it is the country and not the individual that is to be considered. Therefore, it is pertinent and proper to ask if those who were entrusted with the reorganisation of the R.N.A.S. and who are to-day the responsible advisers in matters relating to the Air Service of the First Lord are the best men to be found for their posts. That is a matter which we trust will not escape the attention of the Parliamentary Air Committee when the promised debate takes place. Mr.

Balfour's administration is being attacked on many more grounds than those of the Admiralty-Air Board controversy, and it will be surprising if the outcome does not result in a change at the head of the Admiralty. It is clear that the country has lost confidence in him—and this is no time for the politician of any degree of party to cling to office for its own sake, however distinguished his record of the past. But it is of little avail to get rid of one administrative head if another is to be appointed to be trammelled by the same considerations as his predecessor. We have not the slightest desire to prejudge the case. All we say is that we believe there is a *prima facie* case for enquiry into the whole of the facts as they affect the attitude of the Admiralty towards the Air Board and that if such an enquiry discloses that another "reorganisation" of the R.N.A.S. is necessary, then let it be reorganised, no matter whose feelings may be harrowed in the process.

* * *

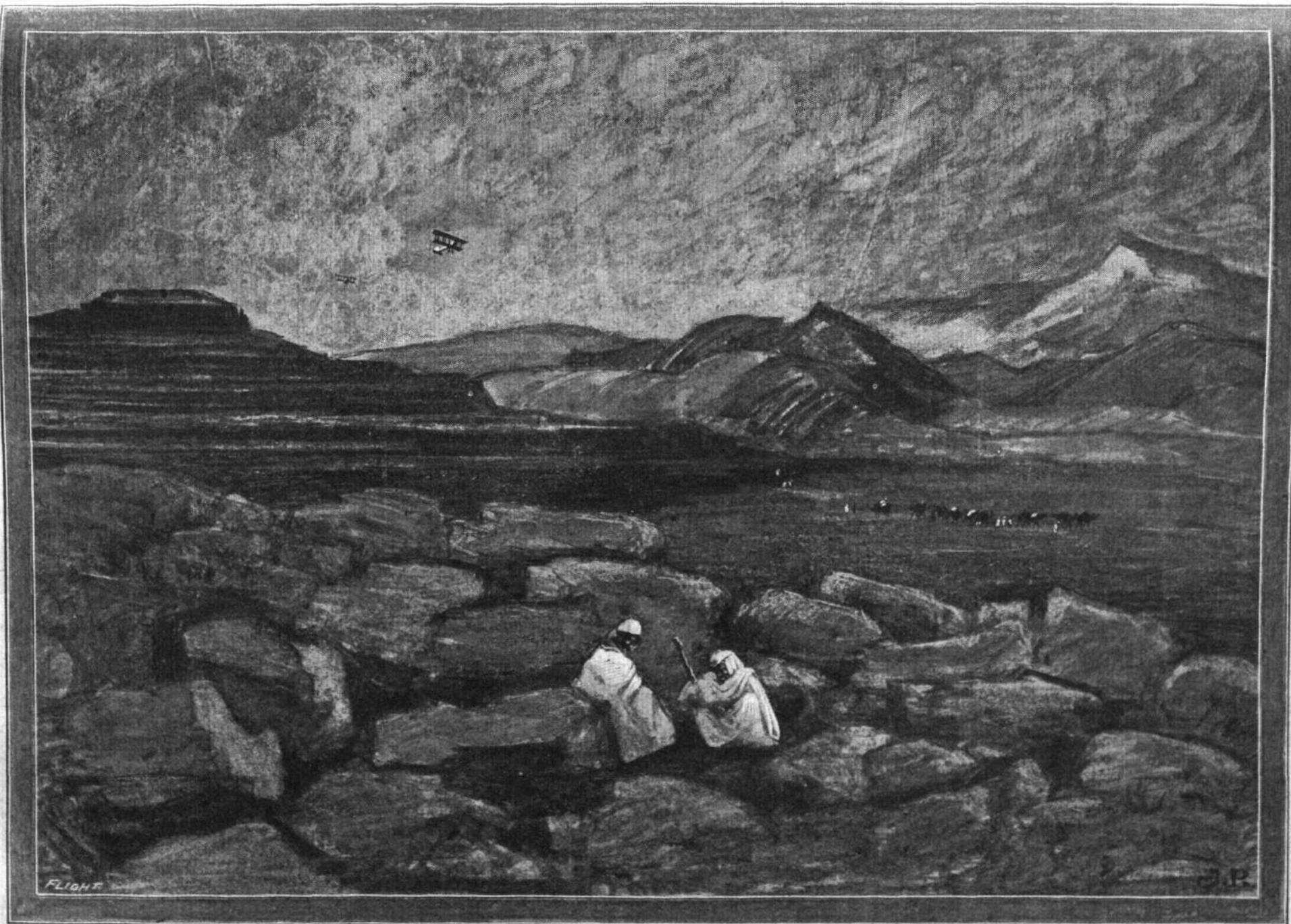
"Prepare for 1917."

Day by day the despatches from the Western front indicate that the enemy is making gigantic efforts to regain at least a measure of his lost supremacy in the air. So far, his efforts have been attended by a conspicuous want of success, even when he has been able to mass a local superiority of force in his favour. We have the fullest confidence that, thanks to the magnificent skill and valour of our R.F.C. pilots, the issue of the struggle in the air will never be in the least degree doubtful if we at home do our part in seeing that they have the best machines in sufficient numbers. It is not particularly comforting either to those at the front or to those who perforce remain at home to realise that while the Germans are putting their foremost efforts into regaining the mastery of the air, our own Government procrastinates day after day and week after week while a sort of faction fight goes on among those who should be straining every nerve to maintain that which has been so hardly won. Let Parliament, let the country insist that there shall be an end at once of the pitiful spectacle of inter-departmental jealousies holding up progress that is vital to our national cause. Let us have done with all this bickering. Let us ruthlessly sacrifice, if need be, all who stand in the way and bend our energies to that preparation for 1917 upon which we have continued to insist these many weeks past.

* * *

Insurance Against Aircraft Raids.

According to replies to questions given by the Prime Minister in the Commons, and Lord Hylton in the Upper House, the Government are considering "whether any alteration is necessary in their policy as regards injuries and loss of life in this country due to enemy operations." Lord Hylton averred that there were so many difficult and complicated points connected with the matter that it was impossible to say anything about it for the present. To our way of thinking, these difficulties are mostly imaginary. We have never departed from the opinions we expressed in 1914-15 during the period of discussion of compensation for material loss through



ON THE FRINGE OF A DESERT.—Air patrol work for the trade routes by our flying forces. From an original drawing by J. Prochazka.

air raids and other enemy operations—that these losses ought properly to be a national liability. As a business alternative if the Government could not see its way to the acceptance of this principle, we took the lead in advocating that anti-aircraft insurance should be made a national asset. This was eventually done some nine months later, as all the world knows.

The matter of compensation for loss of life or limb is on all fours with that of compensation for material loss, save that it appears to be infinitely simpler, while the liability of the community would be relatively infinitesimal. Supposing adequate compensation had been paid to all the victims of air-raids or bombardment since the beginning of the war, what would it have amounted to? Even calculated on a fairly generous scale, the amount of money involved would have been a mere drop in the ocean of expenditure—it would have hurt none and benefited many. Where the difficulties lie we confess we do not see. The Government already has the machinery in working for administering the material-insurance part of the scheme—though from what we hear that machinery is not conspicuous for smoothness of working—and it would surely not entail a great deal of complication to hand over to the department the assessment and payment of claims for loss of life or injury.

If it is not possible—though we fail to see any reason why it should be—to make this matter one of national liability, then let it become an extension of the existing scheme of insurance and be made into a national asset. We much prefer the former, but the main thing is that something must be done about it. Clearly, it is the business of the Government to do that something and the sooner the better.

"No Afternoon Tea."

Mr. Burton Chadwick, the Director of Munitions Overseas Transport, writes to the Press advocating the abandonment of the afternoon tea habit. He says that it is obvious we are faced with a serious food shortage in the near future. The Government is taking steps to relieve the situation, but the possibility of treating the disease at the root does not seem to be seriously contemplated. He believes that before we are many months older our eyes will have been opened to the necessity of rationing essentials and more rigidly excluding the import of non-essentials if only to obtain abundance of war material.

Not only is the food supply of the country in danger in the future, but more important than this is the supply of food for the guns. To-day—we are still quoting Mr. Chadwick—our ships are being used largely for carrying grain, meat and foodstuffs to this country, to satisfy consumption on a peace basis, or perhaps it should be said on a war basis, which experience has shown to be even more extravagant. In the meantime we cannot get ships to carry our war material; and we are leaving behind on the quays of foreign countries tens of thousands of tons of material which is most urgently needed for the manufacture of munitions of war—shell steel, explosives, aircraft materials—in order that the people of this country may feed extravagantly!

Mr. Chadwick's remedy for the state of things he calls attention to is the cutting out of our afternoon

tea. He would make it the law that no food should be allowed to be served in restaurants or hotels between the hours of 3 and 6 p.m. This, he thinks, would achieve these results:—

(1) The reduction in consumption of wheat, sugar, milk, eggs, butter, and margarine, to name only a few of the staple foodstuffs, would be enormous. (2) There would be a proportionately large saving in ships, railways, labour, coal and money. (3) Afternoon tea is a habit of the more well-to-do classes. Its stoppage would not hit the poor or the children. In fact, they would benefit by the resulting increase in food supplies and reduction in prices. (4) It would help to bring the war home to the people of this country, and until we realise—every man and woman of us—that every effort of which we are capable in brain, muscle, money, and self-sacrifice is going to be demanded of us down to our last man and our last shilling, we have not begun to see the victory we so comfortably prophesy.

We are not so sure but that he is right. Undoubtedly, there is worse to come than we have known hitherto, and bad as the worst may be it is nothing to the results that would accrue from losing the war. At all costs—and when we say at all costs we mean all that the phrase can denote—the war has got to be won. To win it we need food for the guns more than we need food for the stomachs of the people. If either are to be pinched it must be the last. To legislate against the "afternoon tea" habit would possibly cause untold misery to the flapper and the nut—we can imagine the howl that would rend the heavens at the very suggestion, seriously made—but we cannot see that any real hardship would be caused to anyone. If such legislation is not really necessary, then we are all against the sort of "control" we have become familiar with in the last two years. If, on the other hand, it is going to assist in shortening the war by a week, let the Food Dictator take hold of the matter at once—as soon as the Government can make up their minds to reconcile conflicting claims and let us know who is to control the nation's food. As to the necessity or otherwise of such control, we have an open mind, but it must be conceded that Mr. Chadwick has made out a very good case for examination and enquiry.

Another airship raid on England and **Two More!** two more enemy craft destroyed!

Excellent news indeed! By this time the gentle Hun must be thinking furiously about the policy of risking his Zeppelins in abortive raids on this country, and be rapidly getting forced to the conclusion that the game is really not worth the candle. These craft cannot be replaced in a week as can aeroplanes, and, apart from the serious loss of material, there is the consideration that every Zeppelin brought down involves the loss by death or capture of at least twenty highly trained officers and men, whose replacement is an even more serious problem than that of the airship itself.

The loss of the airships themselves is a sufficiently serious matter for the enemy. So far as it is possible to gauge the building power of the Germans, it is open to belief that the losses sustained in the last four or five raids on England alone—to say nothing

of other losses which have been reported—exceed the possibilities of replacement in the time. If that is so, then we have every reason to congratulate ourselves on that ground alone. Over and above this, however, there is the moral lesson that has been administered in the demonstration to the enemy that the days when he could raid our shores in practical immunity from serious attack have gone for ever. So vastly have our defences been improved that it has been shown that enemy airships cannot cross our coast line without almost the absolute certainty of loss. That is the best feature of all, and the one that will do more than anything to put a period to these murderous raids which have no apparent result other than the killing and maiming of civilians.

**The
R.N.A.S.
and the
Channel
Raid.**

We trust that the state of things disclosed in a question put on Monday to the First Lord of the Admiralty by Mr. Pemberton Billing, strengthened by a letter to *The Times* from Mr. Joynson Hicks, will not be allowed to stand

where it is. Mr. Billing's question was:—

"Has the right hon. gentleman's attention been called to the fact that although we have many naval air squadrons, up to quite recently they have been absolutely and definitely forbidden to drop bombs on Zeebrugge, and that it is only by repeated representations by the wing commanders that they have been eventually allowed to do so?"

No answer was given, the Speaker ruling that the question was not in order.

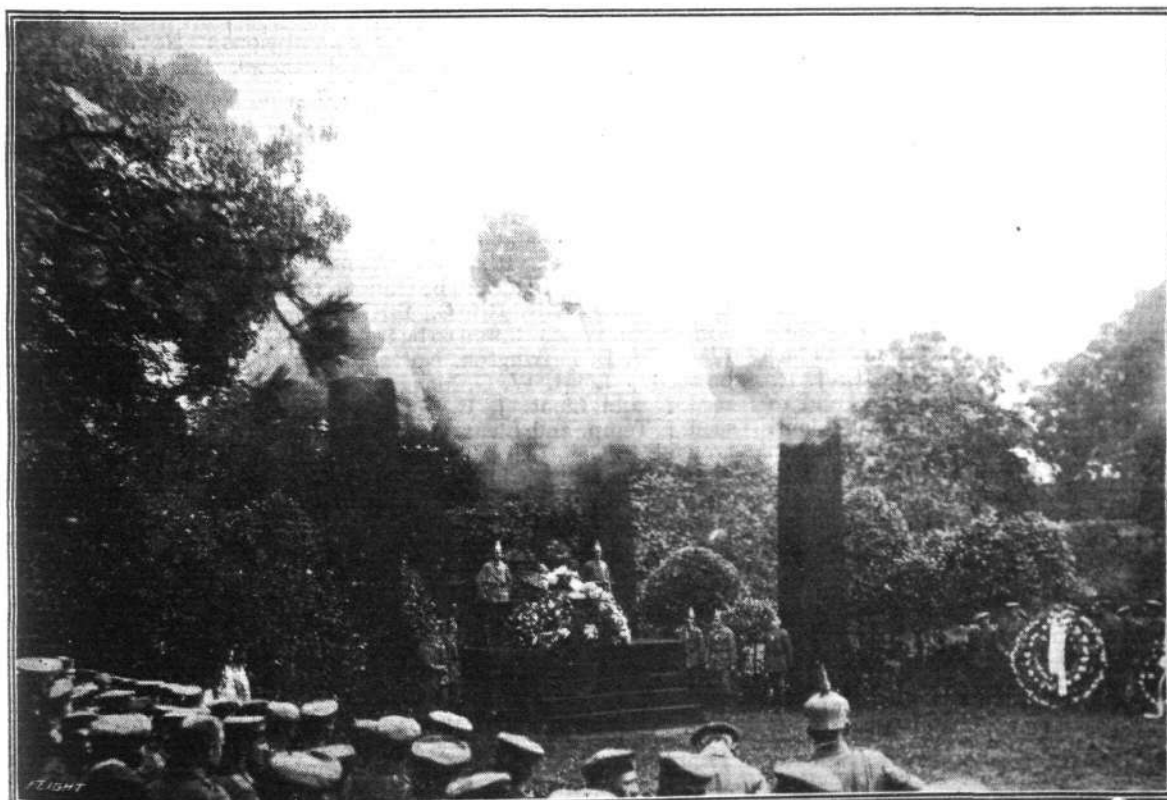
Mr. Joynson Hicks, in his letter, makes these very pertinent remarks:—

We have the finest depôt of the Service at Dunkirk, within 30 miles of Zeebrugge, and yet, for two months prior to the raid of the German destroyers in the Channel, no offensive operations took place. What

do we keep that Service for at Dunkirk? When we know that 10 German destroyers lay in Zeebrugge for two days and nights waiting the opportunity to raid the Channel, why was it that the Naval Air Service were not dispatched, day by day and hour by hour, at whatever risk to themselves, to destroy this nest of hornets? It is known who was responsible for this neglect; why was he not relieved or recalled?

We are by no means inclined to prejudge the case. For all we are allowed to know there may have been sound reasons of strategy behind the alleged inactivity of the R.N.A.S. at Dunkirk. On the face of it, the R.N.A.S. station at Dunkirk has for its *raison d'être* the defence of these shores. That defence is best carried out by attacking the enemy in his lair, where the attendant risk to the attackers can be justified by the possible results of the enterprise, as in this case they obviously were. We say obviously, because since the Channel raid Zeebrugge has been successfully bombarded by our Naval aeroplanes. Manifestly, if this was possible *after* the raid, it was equally possible *before*. As we have said, it is quite on the cards that there were good reasons for the inaction, though they do not appear at the moment, and if they did in fact exist, then the country ought to be told. It may not be possible to state them in detail, but we must be assured that they did in fact exist—if they did. As a matter of fact we have cause to believe that there *were* reasons which were at the time good and sufficient and that these reasons do not now exist. In justice to the R.N.A.S. some authoritative statement ought to be made at once.

Does it after all resolve itself into material interests being at stake? If so, there should not be a moment's hesitation in scrapping them, as after all, whatever material damage to Zeebrugge itself may eventuate, it can be but as a grain of sand to the contra side of the account which continuous bombing would bring about.



The burial in Germany of Flieger Leut. Mulzer, who had been awarded the Order "Pour le Merite" and who was killed in France.—A curious custom prevails in Germany of placing the coffin with the body of dead airmen on a plinth between four stone pillars on which are placed burning torches. This rite is called "Trauerfeier."

The British Air Service

"PER ARDUA AD ASTRA"

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

Admiralty, November 22nd.

Temp. Sub-Lieuts., R.N.V.R.: A. Howard and J. S. Hughes entered as Prob. Flight Officers for temp. service and appointed to the "President," additional, for R.N.A.S., to date Nov. 26th; temp. commissions as Sub-Lieuts., R.N.V.R., terminated.

M. H. Findlay entered as Prob. Flight Officer for temp. service and appointed to the "President," additional, for R.N.A.S., to date June 26th.

Admiralty, November 23rd.

Temp. Surgeon A. G. Holman to the "President," additional, for R.N.A.S., Nov. 22nd.

Petty Officer (Corpl. R.M.L.I.) G. F. Moody and H. J. Horsey, D. H. Daly, D. R. B. Bentley, A. H. Paull, J. E. S. Alexander, A. G. Morris, R. Jarman, H. G. B. Linnell, A. E. Lettington, C. W. B. Colling, McC. S. Bowley, L. L. Baldwin, and H. S. Holman entered as Prob. Flight Officers for temp. service, all to date Nov. 26th.

Admiralty, November 25th.

Flight-Comdr. C. R. Finch-Noyes promoted to rank of Squadron Comdr., date June 30th.

Royal Flying Corps (Military Wing).

London Gazette, November 21st.

Supplementary to Regular Corps.—The under-mentioned 2nd Lieuts. (on prob.) are confirmed in their rank: R. G. Watts, S. F. Feast, T. M. Wilson, A. E. Blackmore, J. J. Scaramanga, G. Barfoot-Saunt, J. D. V. Holmes, G. Dennison, L. B. Crough. The under-mentioned to be 2nd Lieuts. (on prob.): R. F. P. Hocker; Oct. 19th. R. A. W. Collet; Oct. 30th.

London Gazette Supplement, November 22nd.

Supplementary to Regular Corps.—The under-mentioned 2nd Lieuts. (on prob.) are confirmed in their rank: J. R. McDonnell, G. Urquhart, J. D. Smith, E. E. Moodey, C. E. Oxendale, F. Jewell, H. Haycock, B. W. Pitt, W. W. Hall, H. L. U. Clark. The under-mentioned officers of the Australian Imperial Force to be 2nd Lieuts. (on prob.):—Oct. 23rd: Capt. H. A. Hammersley. Lieuts.: G. A. Mitchell, C. R. J. Thompson, S. P. Ashton, H. J. Lane, L. R. Bradbury, H. N. S. Skeffington, J. C. Foden, W. R. Keast, H. D. Luxton, T. L. Gitsam. G. W. Foreman; Oct. 24th. W. W. Vick; Oct. 30th. 2nd Lieuts.:—Oct. 23rd: R. S. Phelan, A. D'A. Sutherland, P. E. Scrivener, A. Burns, A. S. Shepherd, H. Ross. J. G. Wilson to be 2nd Lieut. (on prob.); Nov. 13th.

London Gazette Supplement, November 23rd.

Squadron Commanders.—From Flight-Comdrs., and to be Temp. Majors whilst so employed:—Nov. 1st: Capt. H. Petre, M.C., Commonwealth Mil. Forces; Capt. B. E. Smythies, R.E.; Capt. E. M. Murray, M.C., Queen Victoria's Own Corps of Guides, Ind. Army; Lieut. (Temp. Capt.) W. B. Hargrave, Suff. R. (T.F.); Capt. the Hon. L. J. E. Twistleton-Wykeham-Fiennes, Oxf. and Bucks. L.I., and to be secd.; Temp. Capt. B. P. Greenwood, Gen. List; Lieut. (Temp. Capt.) W. S. Douglas, M.C., R.F.A., S.R.; Lieut. (Temp. Capt.) K. K. Horn, S.R.; Lieut. (Temp. Capt.) R. Egerton, M.C., R. Ir. Fus.; Lieut. (Temp. Capt.) H. MacD. O'Malley, S.R.

Flight Commanders.—Major O. M. Conran, R. Lanc. R.; Nov. 1st. From Flying Officers, and to be Temp. Capt. whilst so employed: Temp. Lieut. G. H. Walker, Gen. List; Oct. 12th. Temp. 2nd Lieut. S. F. Browning, Gen. List; Oct. 17th. 2nd Lieut. P. C. Garratt, S.R.; Oct. 21st. 2nd Lieut. W. A. C. Morgan, M.C., Welsh R.; Oct. 30th. Nov. 1st: Temp. Lieut. F. L. Robinson, M.C., Gen. List; Lieut. P. A. O. Peask, R. Ir. Rif. Nov. 3rd: 2nd Lieut. (Temp. Lieut.) T. A. Tillard, Norf. Yeo. (T.F.); 2nd Lieut. C. S. Duffus, M.C., S.R. 2nd Lieut. C. B. Bond, Middx. R., S.R.; Nov. 6th. Nov. 8th: Temp. 2nd Lieut. L. O. Crowther, Gen. List; 2nd Lieut. H. B. Prior, S.R. Nov. 10th: Temp.

Lieut. H. J. Payn, R.E., S.R.; 2nd Lieut. (on prob.) (Temp. Lieut.) T. R. Irons, York and Lanc. R., S.R.; Temp. 2nd Lieut. W. Sowrey, Gen. List; 2nd Lieut. R. H. Jarvis, S.R. 2nd Lieut. (Temp. Lieut.) F. R. Hardie, 3rd Hrs.; Nov. 14th.

Flying Officers.—Temp. Lieut. F. L. Robinson, M.C., Gen. List, from a Flying Officer (Ob.); Oct. 31st, but with seniority from June 8th, 1916. Nov. 2nd: Temp. Lieut. A. E. Illingworth, Northd. Fus., and to be transfd. to Gen. List; Temp. Lieut. B. S. Cole, Glouc. R., and to be transfd. to Gen. List; 2nd Lieut. B. W. Pitt, S.R.; Temp. 2nd Lieut. D. E. Davies, Gen. List. Nov. 3rd: Temp. 2nd Lieut. H. Butler, York. R., and to be transfd. to Gen. List; Major A. S. W. Dore, Worc. R. (T.F.); 2nd Lieut. F. L. Carter, E. Surr. R., and to be secd.; Temp. 2nd Lieut. H. O. W. Hill, Gen. List; 2nd Lieut. J. J. Scaramanga, S.R.; Temp. 2nd Lieut. R. Hopper, Gen. List.

Adjutant.—Temp. Lieut. R. Addenbrooke-Prout, R.A., and to be transfd. to Gen. List; Nov. 13th.

Equipment Officer, 2nd Class.—2nd Lieut. (Temp. Lieut.) H. F. Anns, London R. (T.F.), from a Staff Lieut. at the War Office, and to be retain his temp. rank whilst so employed; Nov. 8th.

Equipment Officers, 3rd Class.—Temp. 2nd Lieut. H. G. Waterall, Gen. List; Sept. 8th. Oct. 12th: 2nd Lieut. (Temp. Capt.) C. Ingram, Kent Cyclist Bn. (T.F.); 2nd Lieut. (on prob.) H. E. Jarman, S.R. Oct. 31st: Temp. 2nd Lieut. G. B. Monkman, Manch. R., and to be transfd. to Gen. List; Temp. 2nd Lieut. C. S. Edwards, Gen. List; 2nd Lieut. (on prob.) E. Butler, S.R.; 2nd Lieut. (on prob.) W. T. Davis, S.R.; 2nd Lieut. L. B. Crough, S.R.; 2nd Lieut. H. H. Greig, Res. of Off.; Temp. 2nd Lieut. (on prob.) A. W. H. Phillips, Worc. R., and to be transfd. to Gen. List; 2nd Lieut. G. D. Harrison, S.R.; Temp. 2nd Lieuts., Gen. List: M. P. Mullery, N. Glover, R. J. Muxworthy; 2nd Lieut. J. H. B. Foss, S.R.; 2nd Lieuts, S.R.: W. W. Hall, F. Jewell, E. E. Moodey, C. E. Oxendale; Temp. 2nd Lieut. (on prob.) E. H. Hooper, Gen. List.

Supplementary to Regular Corps.—The under-mentioned 2nd Lieuts. (on prob.) resign their commissions: Nov. 24th: E. D. Abbott, W. L. Alison, W. C. Matthews.

London Gazette, November 24th.

Flying Officers (Observers).—Temp. Lieut. D. H. Scott, M.C., Army Cyclist Corps, and to be transfd. to Gen. List; Oct. 18th. Oct. 26th: Lieut. L. H. Jefferson, 11th Hrs., and to be secd.; Temp. Lieut. F. R. C. Cobbold, Suff. R., and to be transfd. to Gen. List; 2nd Lieut. H. M. Golding, Glouc. R., S.R., and to be secd. Oct. 27th: Capt. G. M. Moore, R. Berks. R., S.R.; Temp. 2nd Lieut. G. A. P. Upston, Glouc. R., and to be transfd. to Gen. List; 2nd Lieut. I. M. Harris, K.R. Rif. C., S.R.; Temp. 2nd Lieut. H. G. Ainsworth, Welsh R., and to be transfd. to Gen. List. Oct. 28th: Lieut. W. B. Farrington, Notts. and Derby R., S.R., and to be secd.; Lieut. W. G. Meggitt, Welsh R., S.R., and to be secd.; 2nd Lieut. J. E. MacLennan, Sco. Rif., and to be secd.; Temp. 2nd Lieut. A. W. Rowlands, A.S.C., and to be transfd. to Gen. List; Temp. 2nd Lieut. H. Scandrett, Norf. R., and to be transfd. to Gen. List; Temp. 2nd Lieut. (on prob.) A. E. Godfrey, Gen. List.

Equipment Officers, 2nd Class.—From Equipment Officers, 3rd Cl., and to be Temp. Lieuts. whilst so employed:—Nov. 1st: 2nd Lieut. A. W. Cott, S.R.; 2nd Lieut. J. N. D. Heenan, S.R.

Memoranda.—2nd Lieut. (on prob.) N. Goodwin, from R.F.C., S.R., to be Temp. 2nd Lieut. on Gen. List for duty with R.F.C.; Nov. 4th. The under-mentioned to be Temp. 2nd Lieuts. (on prob.) for duty with R.F.C.: Corpl. T. Jones, from Lond. Electrical Engrs., R.E. (T.F.); Oct. 30th. L.-Corpl. F. J. Standerwick, from Lond. R. (T.F.); Nov. 13th. Flight-Sergt. C. P. H. Gunyon, from R.F.C., to be Temp. 2nd Lieut. (on prob.) for duty with the Mil. Wing of that Corps; Nov. 4th.

Supplementary to Regular Corps.—The appointment of 2nd Lieut. (on prob.) G. T. Bridgewater, notified in the *Gazette* of Sept. 26th, is antedated to Sept. 3rd. The appointment of 2nd Lieut. (on prob.) H. B. D. Grazebrook, notified in the *Gazette* of Oct. 7th, is antedated to Sept. 7th. The appointments of the under-mentioned 2nd Lieuts. (on prob.), notified in the *Gazette* of Oct. 17th, are antedated as follows: To Sept. 7th: H. H. Leage, J. H. Fletcher, W. L. Shaw, A. Graham. J. F. B. Smith to Sept. 10th. W. H. G. Furnivall to Oct. 2nd. The appointment of 2nd Lieut. (on prob.) J. Paradise, notified in the *Gazette* of Oct. 20th, is antedated to Sept. 7th. The appointment of 2nd Lieut. J. D. Campion, notified in the *Gazette* of Oct. 23rd, is antedated to Sept. 7th. 2nd Lieut. (on prob.) G. T. Bridgewater is confirmed in his rank.

The London Gazette Supplement, November 25th.

The under-mentioned to be 2nd Lieuts. (on prob.):—*For duty with R.F.C.*—Oct. 25th: Pte. C. H. Bidmead, from A.S.C.; Pte. J. A. York, from Can. A.S.C.; Dr. H. B. Griffiths, from Can. A.S.C. Oct. 26th: Sergt. H. L. Pate-man, from R.F.C.; 1st Cl. Air-Mech. E. W. Dexter, from R.F.C.; Pte. L. G. Banks, from Lond. R. (T.F.). Oct. 27th: Flight-Sergt. W. F. Leech, from R.F.C.; Sergt. J. R. W. Thompson, from R.F.C.; Sergt. S. Cockerell, from R.F.C.; Acting-Sergt. A. Matthews, from A.O.C.; Pte. C. J. Baylis, from Can. A.S.C.

Flight-Commanders.—Nov. 1st: Major I. A. E. Edwards, R.A., from a Flying Officer. From Flying Officers, and to be Temp. Cpts. whilst so employed: Lieut. R. B. Mansell, Glouc. R., (T.F.); Temp. 2nd Lieut. L. E. Brown, Gen. List; Lieut. W. A. C. Heyman, 4th Hrs.; Lieut. H. H. Balfour, K.R. Rif. C., S.R.; Lieut. C. M. B. Chapman, M.C., E. Kent R.; Lieut. R. C. Gallop, Sco. Rif.; Lieut. H. S. Ward, S.R.; 2nd Lieut. (Temp. Lieut.) C. L. Bullock, Rif. Brig., S.R.; Temp. 2nd Lieut. C. E. Foggin, Gen. List; 2nd Lieut. J. Stuart, R. Innis. Fus.; 2nd Lieut. H. Fisher, S.R. Temp. Lieut. C. R. Cook, Gen. List; Nov. 10th.

Flying Officers.—Temp. Lieut. W. P. Bowman, W. York. R., and to be transf. to Gen. List; July 4th. Temp. 2nd Lieut. L. N. Graham, W. York. R., and to be transf. to Gen. List; July 5th. Temp. Capt. G. M. Bounphrey, att'd. S. Lan. R.; Nov. 2nd. Nov. 3rd: Temp. 2nd Lieut. (on prob.) W. H. N. Shakespeare, Gen. List; Temp. Capt. H. E. Reynell, R. Highrs., and to be transf. to Gen. List; 2nd Lieut. (Temp. Lieut.) W. P. Brown, Lovat's Scouts Yeo. (T.F.). Nov. 4th: Temp. 2nd Lieut. (on prob.) J. W. Foreman, Gen. List; Temp. 2nd Lieut. (on prob.) R. E. G. Fulljames, Gen. List. 2nd Lieut. (on prob.) D. G. A. Allen, Durh. L.I., S.R., from a Flying Officer (Ob.); Nov. 5th, but with seniority from April 1st. Nov. 6th: Temp. 2nd Lieut. A. D. Finney, Gen. List, from a Flying Officer (Ob.), with seniority from Oct. 22nd, 1915; 2nd Lieut. H. Haycock, S.R.

Equipment Officers, 2nd Class.—From Equipment Officers, 3rd Cl.: Lieut. S. A. Laird, S.R.; Sept. 26th. Nov. 1st: Lieut. D. C. James, Worc. R., S.R.; Lieut. M. D. McFarlane, Middx. R., and to be sec'd.; 2nd Lieut. E. McEvoy, Oxf. and Bucks. L.I., and to be Temp. Lieut. whilst so employed. Capt. H. Le Jeune, S.R.; Nov. 10th.

Equipment Officers, 3rd Class.—Nov. 3rd: 2nd Lieuts., S.R.: J. D. Smith, J. R. McDonnell, 2nd Lieut. (on prob.) P. R. Aitken, S.R.

Memoranda.—2nd Lieut. (on prob.) T. H. Cooper, from R.F.C., S.R., to be Temp. 2nd Lieut. (on prob.), Gen. List, for duty with R.F.C.:—Nov. 5th: J. P. Campbell to be Temp. 2nd Lieut. (without the pay and allowances of that

rank) whilst specially employed; Nov. 26th. E. J. Nathan to be Temp. 2nd Lieut. (on prob.); Nov. 13th.

Supplementary to Regular Corps.—The under-mentioned 2nd Lieuts. (on prob.) are confirmed in their rank: E. P. Lyon, E. Butler, G. W. Longstaff. The under-mentioned to be 2nd Lieuts. (on prob.):—Oct. 19th: M. J. Morris, N. R. Anderson, A. C. Atkey, C. S. Bellamy, H. B. Billings, J. W. Boulter, C. H. Cameron, J. G. Crang, C. M. De Rochie, M. Lavoie, G. I. D. Marks, S. W. Graham, M. G. Gunn, N. E. Kelk, R. H. Lloyd, W. G. M. Browne, L. B. Hyde-Pearson, B. A. Doran, B. J. Glynn, J. L. Fry, A. E. Watts, W. H. Weller, E. R. Tucker, U. H. Seguin, W. F. Willis, F. G. Reid. C. H. Sharpe; Nov. 4th.

London Gazette Supplement, November 27th.

Flight Commander.—Temp. Lieut. A. M. Thom, M.C., Gen. List; Nov. 1st.

Flying Officers (Observers).—Temp. 2nd Lieut. R. F. Power, R.A., to be transf. to Gen. List; Sept. 7th. Temp. Lieut. G. F. C. Rawlings, R.A., and to be transf. to Gen. List; Oct. 6th. Oct. 8th: Lieut. (Temp. Capt.) F. W. Hudson, Norf. R. and to be sec'd.; Lieut. H. St. Clair Smallwood, Ind. Army, Res. of Off.; 2nd Lieut. H. Richardson, Norf. R., and to be sec'd.; 2nd Lieut. P. Ainsworth, Manch. R., T.F. Oct. 21st: Temp. Lieut. H. J. L. Cappel, Gen. List; Temp. 2nd Lieut. H. A. Pearson, R.A., and to be transf. to Gen. List; 2nd Lieut. D. Clark, High. Brig., R.F.A., T.F.; 2nd Lieut. B. K. D. Robertson, Glouc. R., T.F. Temp. 2nd Lieut. C. T. Richards, R.A., and to be transf. to Gen. List; Oct. 24th. 2nd Lieut. L. E. Dawson, 7th Australian Light Horse; Oct. 26th. Temp. 2nd Lieut. (on prob.) C. W. Adkin, Gen. List; Nov. 1st. Nov. 2nd: 2nd Lieut. (Temp. Lieut.) A. M. Mitchell, A.S.C., and to be sec'd.; Temp. 2nd Lieut. E. Roberts, Welsh R., and to be transf. to Gen. List. Nov. 5th: Temp. 2nd Lieut. R. Robertson, Gen. List; Temp. Lieut. J. W. Mathews, A.S.C., and to be transf. to Gen. List; Temp. Lieut. J. S. Dunkerley, Sco. Rif., and to be transf. to Gen. List; Temp. 2nd Lieut. (on prob.) W. S. Wright, Leic. R. and to be transf. to Gen. List; 2nd Lieut. H. Munden, Som. L.I., and to be sec'd.; Temp. 2nd Lieut. P. C. Hollingsworth, Gen. List. Temp. 2nd Lieut. G. F. Ward, Army Cyclist Corps, and to be transf. to Gen. List; Nov. 9th.

Special Appointment (graded as a Park Commander).—Capt. Lord R. E. Innes-Ker, I. Gds., Spec. Res., from an Equipment Officer, 1st Cl., and to be Temp. Maj. whilst so employed; Nov. 8th.

Equipment Officer, 3rd Class.—Temp. 2nd Lieut. R. C. Fielder, Gen. List; Nov. 6th.

Memoranda.—Lieut. G. A. Hoghton, R.N.V.R., to be Temp. 2nd Lieut. whilst employed with R.F.C.; Aug. 21st, 1916. Cadet E. T. Driver, from R.A. Cadet School to be Temp. 2nd Lieut. for duty with R.F.C.; Sept. 11th, 1916. 1st Cl. Air Mech. W. A. Andrews, from R.F.C., to be Temp. 2nd Lieut. (on prob.) for duty with the Mil. Wing of that Corps; Nov. 2nd.

Supplementary to Regular Corps.—2nd Lieut. (on prob.) T. M. Coates resigns his commission; Nov. 28th.

Aeronautical Inspection Department.

London Gazette, November 21st.

The under-mentioned to be Temp. Hon. Lieuts. while employed as Assistant Inspectors, A.I.D.:—Aug. 26th: J. B. Ringwood, G. Ramage.

London Gazette, November 24th.

L. F. de Peyrecave to be Temp. Lieut. while employed as Assistant Inspector, A.I.D.; Nov. 1st.



Vacancies in the R.F.C.

THE Royal Flying Corps has been reopened for recruiting, but no man in medical category "A" (general service) will be accepted unless he is a skilled tradesman, that description being applied only to men who pass very creditably in their trade tests. Coppersmiths, motor cyclists, electricians, fitters and instrument repairers may be accepted, even though fit for general service.

Clerks, draughtsmen, shoemakers and telephonists must be in Class B iii. Cooks have to be in Category B ii., and from this medical class the Royal Flying Corps is seeking to draw coppersmiths, motor cyclists, men for the labour section, painters and technical storemen.

Men who will be accepted through either B i. or B ii. are: Motor transport drivers, electricians, engine fitters, instrument repairers, photographers, cabinet makers (as riggers), sailmakers, vulcanisers, men for the balloon party, and Silco plant and balloon riggers.

Those who wish to join as gunner-observers must conform to the standard of fitness required for pilots, and hold a Hythe certificate for machine gunnery. The corps also desires textile fitters (as armourers), acetylene welders and winch drivers and fitters, who must have an intimate knowledge of petrol winches.

The recruiting officer is Major Mitchell, The Polytechnic, Regent Street, W.

A GRAPHICAL METHOD OF DETERMINING BENDING MOMENTS IN CONTINUOUS BEAMS.*

By E. O. WILLIAMS, B.Sc. (Lond.), Designer to the Wells Aviation Co.

The exact calculation of the stresses set up in such a flexible structure as the wings of an aeroplane is a lengthy and tedious process, and one, moreover, which requires for its successful manipulation a trained mathematician if the results are to justify the time and trouble expended upon it. Several approximate methods have been evolved, one, generally known as the R.A.F. method, by Bairstow and Maclachlan, described in report No. 83 of the N.P.L. report for the year 1912-13, while doubtless there are individual constructors who employ the more usual engineering methods. Graphical methods, in connection with this as with so many other problems, are always preferable for practical purposes provided they give results of the required degree of exactitude. The following graphical method, which Mr. Williams has been good enough to communicate to us, is of German origin, and is, we understand, extensively employed on the Continent, where it is known as Ritter's method. It has, in addition to giving results practically identical with those obtained by the exact mathematical solution, the very great advantage that it can, as Mr. Williams points out, be entrusted to an ordinary draughtsman, it is rapidly carried out, and any mistakes, which in mathematical calculations are frequently difficult to trace, will be instantly apparent to the trained eye. The method has so much to recommend it that we firmly believe that, once it becomes generally known, it will be employed almost to the exclusion of all others, and it is therefore with a great amount of confidence that we place it this week before our readers.—ED.

THE method of determining bending moments indicated in the accompanying figures is not, I believe, generally known to engineers in this country, the mathematical solution being usually employed. The graphical method has the advantage that it can be delegated to anyone without a mathematical training, and is much easier to check, as any error in construction is at once obvious to the experienced eye. In the figures five unequal spans are indicated, but of course the method applies to any number of spans. Briefly speaking, the method is as follows: Set out the spans to any convenient scale and determine the "fixed points" as shown in Fig. 1. Each span is divided into three equal parts by the divisional points h_1, h_2, h_3 , &c. From h_2 set off to the left $h_2k_1 = \frac{l_1}{3}$; from h_3 set off to the left $h_3k_2 = \frac{l_2}{3}$; from h_4 set off to the left $h_4k_3 = \frac{l_3}{3}$, &c. Through the points k_1, k_2, k_3, k_4 , &c., thus found draw vertical lines. From A draw a line at any convenient angle intersecting the vertical line through k_1 at g_1 . Through the right-hand divisional point h_1 of the span AB draw another vertical line intersecting Ag_1 in f_1 . Produce f_1B until it intersects the vertical line through the left-hand divisional point h_2 of the span AB in m_2 , and join g_1m_2 cutting the line BC in T , which is the left-hand fixed point of span BC. Draw Tg_2 at any convenient angle, and continue as previously, finding V, the left-hand fixed point of the span CD. In the same manner find X and Z. The right-hand fixed points, S, U, W and Y, are found in a similar manner, starting by drawing a line from the point F through m_5 intersecting the vertical line through h_4 in n_5 . Join f_4n_5 cutting DE in Y, which is the right-hand fixed point of span DE.

The right-hand fixed point, W, of span CD is found by drawing a line from Y through m_4 proceeding as previously, and in the same manner all the remaining fixed points are located. When this has been accomplished, the next step is to utilise the "fixed points" for determining the effect of the bending moment in one span on the other spans of the continuous beam. This is done by constructing on

any particular span the freely supported bending moment diagram due to the load on that span. The closing line will, of course, depend on the distribution of the load on the span in question, and methods are indicated for different load distributions in Figs. 2, 3, 4, 5 and 6.

In connection with bending moments in aeroplanes Fig. 2 is the most important, since it deals with a uniformly distributed load. Commencing with any of the spans the bending moment on that span is first determined. In the case of a uniformly distributed load the diagram is, of course, a parabola. The point K is on the centre line of the span. Join KB and KC, cutting perpendiculars through T and U in L and M respectively. NLMO is then the closing line. By continuing the closing line through the appropriate fixed points and supports, the bending effect in adjacent spans is at once given. If no other spans are loaded the solution is then complete. As, however, the other spans usually are loaded, at any rate in an aeroplane, it becomes necessary to determine the effect of these loadings. This is done by constructing on all spans the appropriate freely supported bending moment diagram and determine the closing lines, which continue through fixed points and supports.

Now sum up all the bending moments at any particular point, having, of course, due regard to sign. When the closing line is below the base line the ordinate between it and the base line represents negative bending moment and *vice versa*. The method is illustrated in Figs. 7 and 8. In aeroplane spars subjected to direct axial compression, the bending moment due to lateral load at the centre of the spar is increased by an amount equal to the compressive force multiplied by the total deflection, but the bending moment at the supports remains practically unaltered. The exact solution is involved, but as a first approximation it may be assumed that, owing to the increase in the centre bending moments, the points of contraflexure move half-way towards the supports. If l_1 is the length of the span, and l_0 the length between the points of contraflexure on the continuous bending moment diagram, the assumption is that the length between the points of contraflexure of the axially loaded beam is $\frac{l_1 + l_0}{2}$. The following

* Copyright.

(Strictly Copyright.)

NOVEMBER 30, 1916.

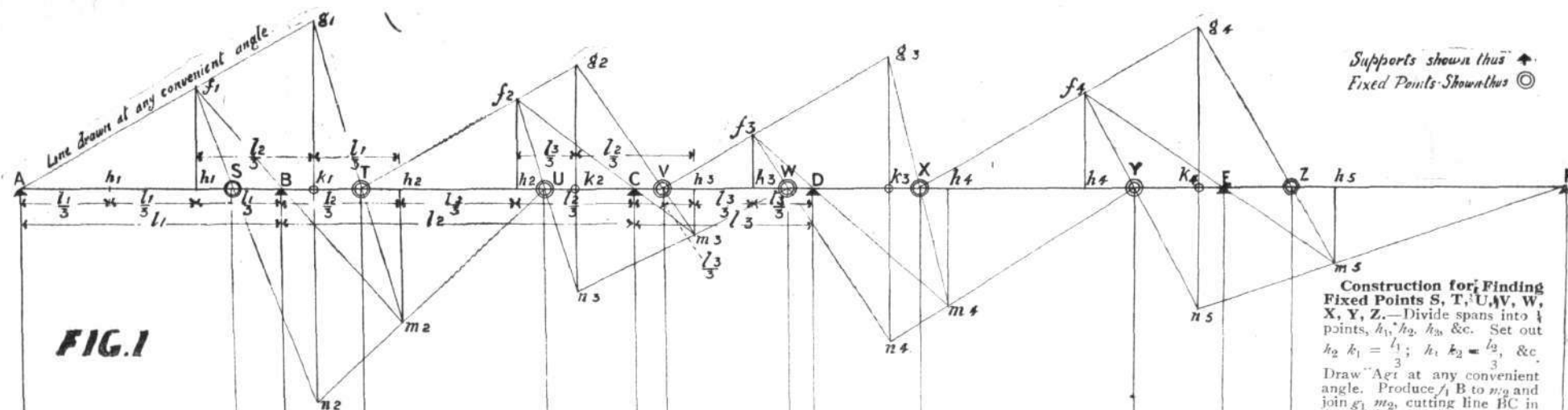


FIG. 1

Construction for Finding Fixed Points S, T, U, V, W, X, Y, Z.—Divide spans into 4 points, k_1, k_2, k_3 , &c. Set out $k_2, k_1 = \frac{1}{3}; k_1, k_2 = \frac{2}{3}$, &c.

Draw Ae_1 at any convenient angle. Produce $e_1 B$ to m_2 and join e_1, m_2 , cutting line BC in T_1 , which is the left-hand fixed point of span BC . Draw Tg_2 at any convenient angle and continue as previously, finding V , the left-hand fixed point of span CD . Likewise find X and Z . The construction below line AF determines right-hand fixed points.

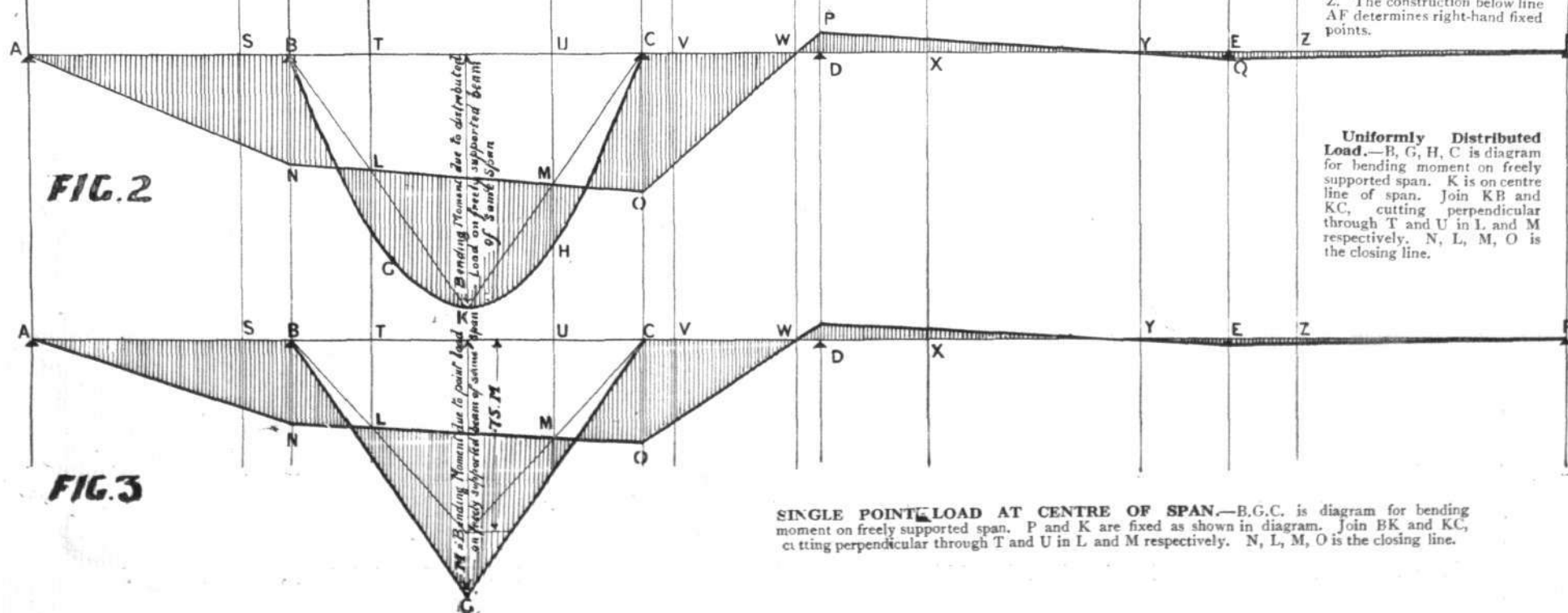


FIG. 3

SINGLE POINT LOAD AT CENTRE OF SPAN.—B.G.C. is diagram for bending moment on freely supported span. P and K are fixed as shown in diagram. Join BK and KC, cutting perpendicular through T and U in L and M respectively. N, L, M, O is the closing line.

FLIGHT

A GRAPHICAL METHOD OF DETERMINING BENDING MOMENTS IN CONTINUOUS BEAMS (continued).

(Strictly Copyright.)

FLIGHT

FIG 4

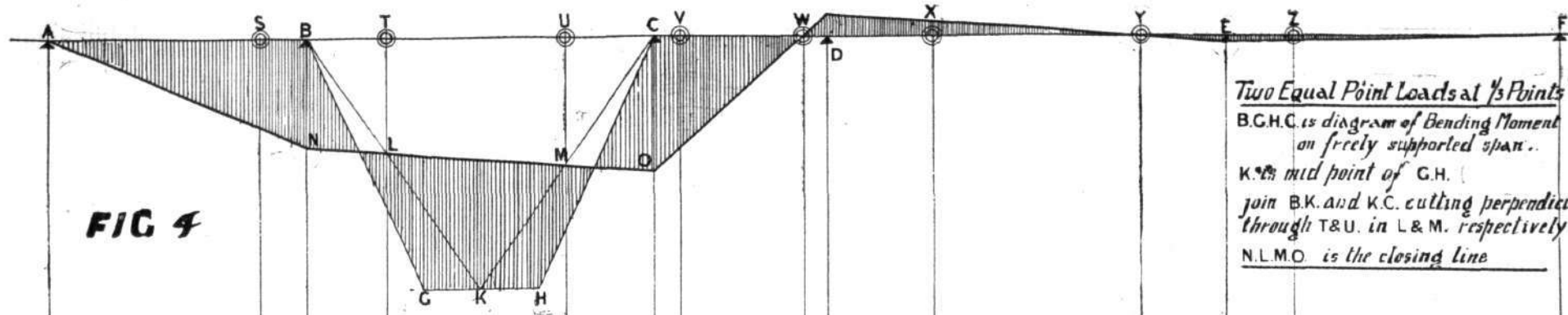


FIG 5

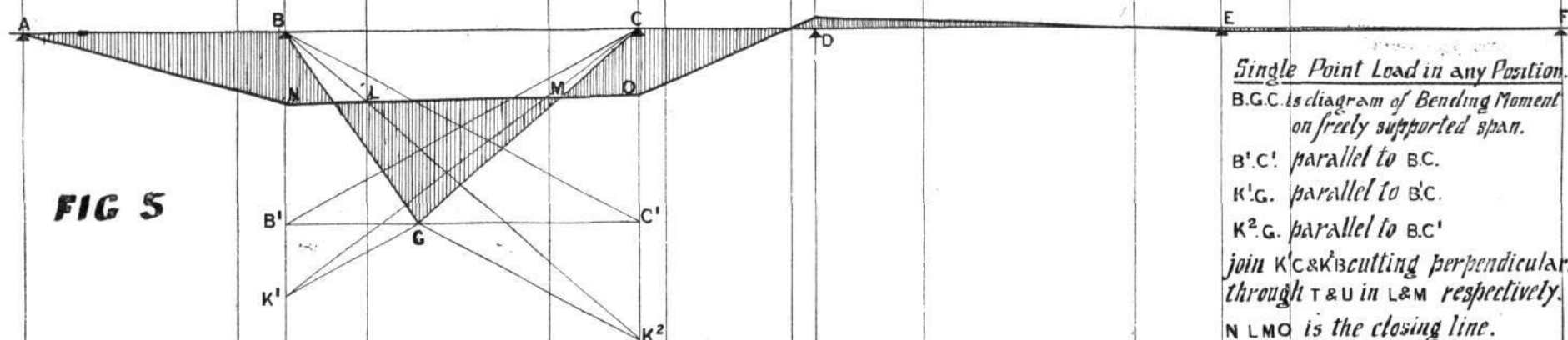
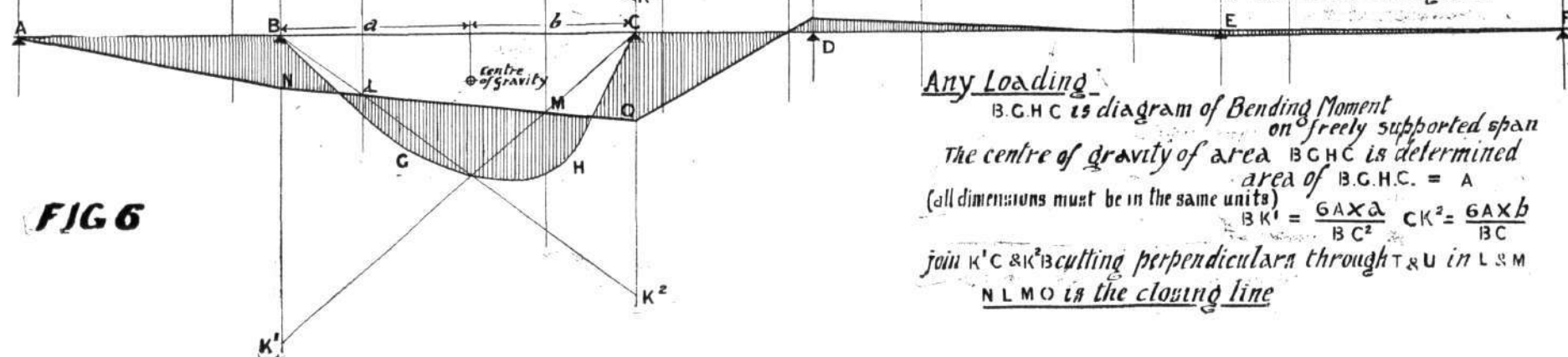
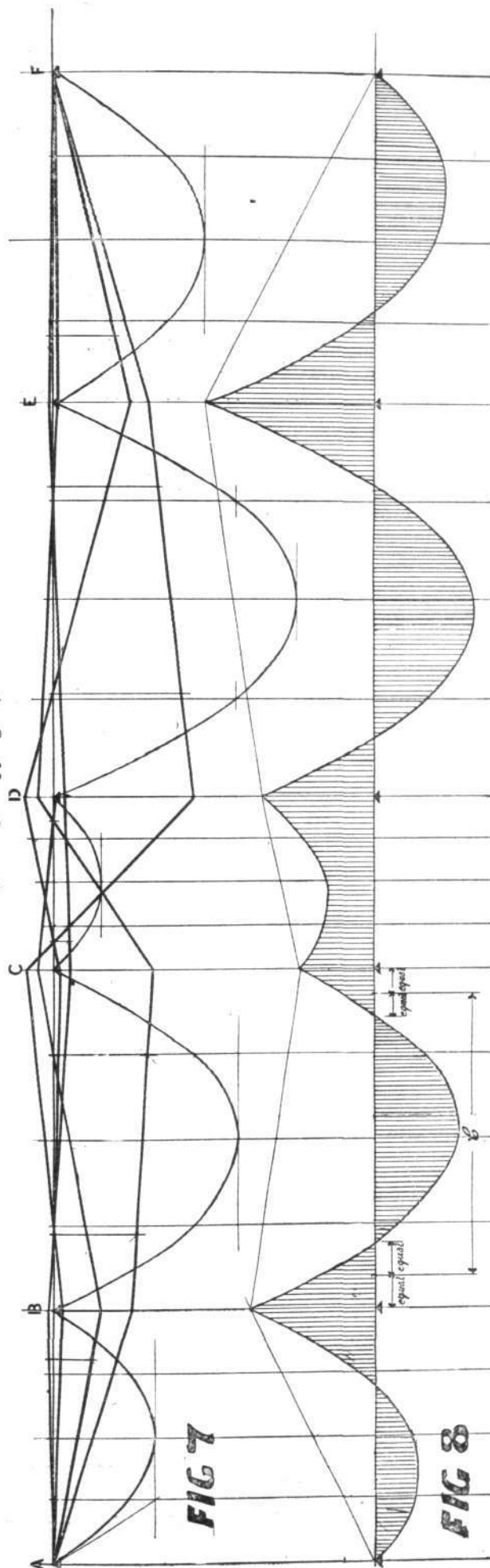


FIG 6



A GRAPHICAL METHOD OF DETERMINING BENDING MOMENTS IN CONTINUOUS BEAMS (continued).
 (Strictly Copyright.)



formula for a laterally loaded strut can then be applied to a strut of length $\frac{l_1 + l_c}{2}$.

$$f_c = \frac{w \left(\frac{l_1 + l_c}{2} \right)^2}{8Z} \left(\frac{P_e}{P_e - P} \right) + \frac{P}{A}$$

Where—

f_c = maximum compressive stress in lbs. per sq. in.

w = lateral load on spar in lbs. per inch run.

Z = section modulus of spar.

P_e = Euler's limiting value for the spar on length $\frac{l_1 + l_c}{2}$ considered free ended.

P = end compression on spar in lbs.

A = Area of spar section in sq. inches.



"X" AIRCRAFT RAIDS.

IN view of the decision of the Government not to allow details of places visited by enemy aircraft to be published, we are, as before, giving to each one an index number. Eventually, when details are available, we shall give the respective information under these index numbers, which will facilitate easy reference to each particular raid.

"X 54" Raid, November 27th-28th.

THE following *communiqué* from the Field-Marshal Commanding-in-Chief, Home Forces, states:—

November 28th, 1.20 a.m.

"Hostile airships crossed the North-Eastern Coast last night. Bombs are reported to have been dropped at several places in the Northern Counties, but no reports as to casualties or damage have yet been received."

November 28th, 11.15 a.m.

"A number of hostile airships approached North-East Coast of England between 10 and 11 p.m. yesterday. Bombs were dropped in various places in Yorks and Durham, but damage is believed to be slight. One airship was attacked by an aeroplane of the R.F.C. and brought down in flames. Fell in sea off coast of Durham."

"Another airship crossed into North Midland counties and dropped some bombs at various places. On her return journey she was repeatedly attacked by aeroplanes and by guns. She appears to have been damaged, for the last part of her journey was made at very slow speed, and she was unable to reach the coast before day was breaking. Near Norfolk coast she apparently succeeded in effecting repairs, and was proceeding east at high speed and at altitude of over 8,000 ft., when she was attacked 9 miles out at sea by four machines of the R.N.A.S. and an armed trawler, and brought down in flames at 6.45 a.m."

November 28th, 4.10 p.m.

"The latest police reports show that the damage and casualties caused by last night's air raid were very slight, although over 100 bombs are known to have been dropped. One woman died from shock, while five men, seven women and four children were injured. In one town fifteen houses were seriously, and twenty slightly, damaged. At the other places at which bombs were dropped the damage was insignificant. No damage of military importance was caused."

"X 55" Raid, November 28th.

November 28th, 3 p.m.

"Between 11.50 and twelve noon this morning six bombs were dropped on London by a hostile aeroplane, flying at a great height above the haze. Four persons were injured—one, a woman, seriously. The material damage is slight."

Later.

"Official police reports show that nine persons were injured in London this morning by the bombs dropped by the hostile aeroplane."

Admiralty, November 29th, 12.22 a.m.

"The Commodore of Dunkirk has been informed by the French authorities that they brought down an aeroplane at 2.15 p.m. to-day (Tuesday), carrying two naval lieutenants, and with a large scale map of London on board."

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

SPECIAL COMMITTEE MEETING.

A SPECIAL MEETING of The Committee was held on Wednesday, the 22nd inst., when there were present: Prof. A. K. Huntington, in the Chair; Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Lieut.-Commander H. E. Perrin, R.N.V.R. (in attendance), and the Assistant Secretary.

Election of Members.—The following New Members were elected:—

Lieut.-Commander Nicolas d'Andreeff (Imperial Russian Navy).
Flight-Lieut. Stafford St. George Conway Belfield, R.N.
Lieut. A. Norman Bengel, R.F.C.
Lieut. Percy George Burton, R.N.V.R.
Alfred Gollin.
Flight-Lieut. Alfred Sebastian Goodwin, R.N.
Lieut. George Grossmith, R.N.V.R.
Lieut. H. Hemming (Worcestershire Regt.).
2nd Lieut. Francis Gordon Hogarth, R.F.C. (S.R.).
Lieut. Horace Howard, R.N.V.R.
Fleet Paymaster Frank Lenn, R.N.
Flight-Lieut. Edward Alexander de Lossy de Ville, R.N.
Capt. Stephen William Price, R.F.C.
2nd Lieut. Neville Julian Rich, R.E.
Flight-Commander Richard Sterling Robinson, R.N.
2nd Lieut. Alexander John Murray Ross.
Capt. Helperus Andrias Van Ryneveld, R.F.C.
Lieut. H. V. Stammers, R.F.C.
Flight-Lieut. Siegfried Rickards Watkins, R.N.
Capt. B. T. Monier-William, R.G.A.

New Members.

In accordance with the rules, the Annual Subscription of any New Member who is elected between November 1st and December 31st of this year, will cover the period up to December 31st, 1917.

Suspension of Entrance Fees of New Service Members.

Until further notice, Service Members will be elected to the Royal Aero Club without Entrance Fee.

New Club Premises.

The arrangements for the alterations, decorations, furnishing, &c., of the New Club House are in the hands of a special Committee, and the work is progressing very satisfactorily. There will be a billiard room, smoking lounges, buffet, reading and writing room, dining room and bedrooms. The house is situated within three minutes' walk of the present Club premises.

THE FLYING SERVICES FUND administered by THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers, and men.

Two American Flyers Dead.

AMERICAN aviation has lost two of its prominent exponents in Antony Jannus and Silas Christofferson. The former, who represented the Curtiss interests, was killed in Russia while testing a large flying boat for the Russian Army on November 4th. Apparently something went wrong with the engine, and the machine fell into a lake.

Silas Christofferson was killed on October 31st, his machine overturning when only 100 ft. up. He was testing at the time a military machine fitted with a new type of control.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.

	£	s.	d.
Total subscriptions received to Nov. 21st, 1916	10,999	7	9
Collected at the Westland Aircraft Works, Yeovil (Fifty-eighth contribution)...		0	17 8
From the Ship's Company of H.M.S. "Campania" Staff and Workers of Gwynnes, Ltd. (Twenty-eighth contribution)	10	0	0
		8	14 3

Total, November 28th 1916 .. 11,018 19 8
166, Piccadilly, W. B. STEVENSON, Assistant Secretary.



The Car.
No. 3, Clifford Street, New Bond Street, W. The new premises of the Royal Aero Club which will be opened in December.

He was consulting engineer to the Christofferson Aeroplane and Motor Corporation at Redwood City, Cal., and his most noted flight was between San Francisco and Los Angeles over the Tebachi mountain.

Fatal Accident.

At an inquest held by the Hounslow coroner on November 25th on Lieut. R. N. Dobbyn, R.F.C., the evidence showed that the machine piloted by the deceased turned too sharply when rising, and the machine dived to earth and took fire. A verdict of "Accidental Death" was returned.

ALLIES' MACHINES IN GERMAN HANDS.

IN Germany is published from time to time lists of the British and French machines which they claim to have brought down. The lists are of great interest, since they contain much detailed information as to machines and the fate of the pilots and observers. From the last point of view we regard them as exceedingly valuable, because they clear up the fate of many of those of our gallant airmen who simply figure in our casualty lists as "Missing." We publish below the latest of these lists available. Possibly they are not absolutely complete, but a comparison with our lists shows that they are reasonably so, and are thus very helpful in enabling us to

know exactly what has become of many missing officers and their machines.

The list, as we publish it, has a formidable appearance, but when we come to compare it with our own published lists there is, unfortunately, only too much reason to believe that it tells no more than the truth about the terrible toll of life the Flying Services exact as the price of Admiralty of the Air. Heavy as it is, it has to be faced, and such a list as this emphasises the need for further and yet further sacrifice to maintain what we have secured at the price of the devotion of those whose names are enshrined in the Roll of Honour.

BRITISH MACHINES—AUGUST.

Machine.	No.	Engine.	No.	Occupants.
Vickers	—	—	—	Shot down August 1st, Bapaume. Totally burnt.
B.E.	546	Renault.. ..	—	Capt. C. W. Snook, 6 Squadron.
English biplane	5,177	—	—	Lieut. H. J. Newton, Sergt. J. A. Ornsby.
Sopwith	5,681	—	—	Lieut. L. Clark, Sergt. A. Walker.
Vickers	384	—	—	Lieut. Machenson, Sapper Eric Mercill.
Martinsyde	7,307	Beardmore	547	Lieut. Turner.
B.E.	7	Renault.. ..	—	* Totally burned, shot down Bapaume, August 5th.
Sopwith	—	Gnome	—	Lieut. Blain, C. D. E. Griffith.
B.E.	—	—	—	Capt. Leggat.
Vickers	—	—	—	Lieut. J. A. Mann, other occupant burned.
Avro	—	—	—	* Shot down August 9th, Bapaume.
Vickers	—	—	—	* Brought down in aerial combat, August 12th.
B.E.	6,549	—	—	2nd Lieut. G. L. Clifford Geen, 19 Squadron.
Seaplane	—	—	—	Lieut. P. C. Tocke, Lieut. C. R. Nival.
B.E.	2,613	Engl. Daimler	—	Lieut. R. T. Griffin, Lieut. Whitehead, 2 Squadron.
Sopwith	—	—	—	Capt. R. G. Hopwood, G. L. Pearce.
Vickers	4,285	Engl. Daimler	475	Lieut. R. D. Walker, Lieut. Smith.
Vickers	5,994	Gnome	30,391	Lieut. Turner.
B.E.	5,445	Renault.. ..	—	2nd Lieut. Corbold.
B.E.	6,532	Daimler.. ..	25,139	Lieut. A. W. Reynell.
Avro	—	Rhone	—	Lieut. Odling, Lieut. Maze, 70 Squadron.
Morane	173	Rhone	576	Lieut. Beauchamp, Meurnyn Wainwright.
B.E.	—	—	—	* Shot down August 26th, totally burned.
Bristol	6,562	Daimler.. ..	25,159	Lieut. Briggs.
Bristol	5,836	Austin	642	Lieut. Cairnes, Lieut. Tulloch.
B.E.	—	—	—	* Shot down August 26th.
Martinsyde	—	—	—	Lieut. Strange.
Martinsyde	7,482	Beardmore	449	Capt. Skinner.
Martinsyde	7,479	Daimler.. ..	2,435	Lieut. Byrne, 27 Squadron.
Martinsyde	7,299	—	498	*
B.E.	5,235	Daimler	6,903	Lieut. MacIntosh, Lieut. MacFee.

BRITISH MACHINES—SEPTEMBER.

B.E.	—	Gnome	30,010	Capt. Wilson.
F.E.	4,290	Beardmore	26	Lieut. Bardon, Lieut. Griffin.
Sopwith	—	—	—	* Shot down September 2nd.
F.E.	6,934	Marston	28,425	Lieut. Frank Douglas, Cpl. Junners, 23 Squadron.
Vickers	2,939	—	—	†
Bristol	7,070	—	—	*
Sopwith	—	9 cyl.	—	2 Officers. Shot down September 6th.
Vickers	—	Daimler.. ..	255	*
Vickers	—	Gnome, B 692	6,425	A Lieut. Dead. Name unknown.
Unknown	—	—	—	Lieut. Vernon, Lieut. Firbank.
Sopwith	—	110 Clerget	—	2nd Lieut. Organ.
Sopwith	897	—	—	Lieut. Ale, Cpl., name unknown.
Vickers	7,873	Gnome	—	*
Sopwith	895	Gnome	973	Dead. Name unknown.
Nieuport	—	—	—	Lieut. Bowyer, Lieut. Saint.
B.E.	6,583	Renault.. ..	20,738	Lieut. Elphinston
B.E.	6,164	Renault.. ..	8,232	Lieut. Gilbert Klingenstein.
F.E.	—	—	—	* Shot down September 15th at Hoplincourt.
B.E.	4,495	Renault.. ..	792	Lieut. Cushing Dougall.
Martinsyde	7,484	Daimler.. ..	—	2nd Lieut. Kennedy, 22 Squadron.
F.E.	6,669	Daimler.. ..	—	*
Vickers	7,018	Daimler.. ..	701	Pilot, Cpl. Rees, Observer ?
F.E.	7,063	—	—	*
Vickers	4,852	6 cyl. Daimler	—	Lieut. F. G. Thierry, Bucks.
F.E.	6,994	Beardmore	662	Lieut. Thomsen, Cpl. J. E. Glover.
B.E.	5,873	—	1,302, W.D. 1,472	Lieut. Patterson.
Sopwith	—	—	—	* Shot down September 17th, Estrées.

* Identity not established.

† Totally wrecked. Occupant: Officer, identity not established. Wings numbered 12941. Rudder, A.M.C. 788.

BRITISH MACHINES—SEPTEMBER. (Continued.)

F.E.	—	—	—	*Shot down September 17th, Trescault.
Avro	2,470	Beardmore ..	337	*
B.E.	2,471	—	3,896	Lieut. Money.
Sopwith	A. 1,913	Rinston	—	*
F.E.	4,934	Beardmore ..	283	2nd Lieut. Canter, 2nd Lieut. Gray.
F.E.	6,927	Beardmore ..	556	Pilot, Thomas Jones, Observer, F. A. Hewson.
B.E.	—	—	—	*Shot down September 21st at Le Mesnil.
B.E.	6,574	—	—	2nd Lieut. Hederwick.
Sopwith	—	Rinston	—	*Totally burned. Shot down St. Pierre Wood, September 22nd.
B.E.	6,544	Daimler	25,164	Lieut. Hedderwick.
F.E.	6,993	Beardmore ..	681	Lieut. Hunt, Cpl. Law.
Martinsyde ..	7,475	Daimler	—	*
Martinsyde ..	174	Daimler	1,420	Bellerby.
Martinsyde ..	168	—	—	Roberts.
B.E.	7,481	—	1,420	Apparently Non-Com.*
Martinsyde ..	—	Daimler	—	Lieut. West.
Martinsyde ..	—	—	—	Edwards.
Martinsyde ..	7,498	—	G. 100/191	Lieut. Wingfield.
F.E.	—	Beardmore ..	168	2nd Lieut. Dendrino.
Sopwith	9,705	Clerget	—	2 Officers.*
Avro, 1 seat. ..	7,495	—	168	Dead.*
Avro, 1 seat ..	1,568	—	—	—
B.E.	2,742	Austin	679	Lieut. A. J. Casson.
Vickers	—	Daimler	6,994	E. C. Landsdahl. Other unknown.
Farman	—	—	—	Pilot Lutoni, Observer, Tilch.
Farman	—	—	—	Dead.* Shot down at Nurle, September 24th.

FRENCH MACHINES—AUGUST.

Caudron	2,059	2 Rhone	6,766, 6,763	2nd Lieut. Marcel Broussart, Cpl. Charles Fouchée.
Nieuport	—	Renault	—	Lieut. Baudry.
Nieuport	833	—	—	Sergt. Maffert.
Morane	143	Rhone	—	*
Nieuport	—	—	—	*Machine burnt Shot down August 4th near Miséry.
Caudron	1,467	2 Rhone	—	Lieut. Excole, 2nd Lieut. Verdier.
Nieuport	—	—	—	*Machine totally burnt at Guendecourt.
Nieuport	1,520	Clerget	830	Lieut. de Rolland, Cpl. Raymond Boudand.
Nieuport	1,179	Rhone	3,523	Sergt. Hermann Hentsch, Sergt. Felix Veret.
Caudron	306	Clerget	479	Sergt. de Teterline, Pupil Orety.
Caudron	1,309	2 Rhone	332, —	Cpl. Andrée Jouanny, Aspirant Marc Florentin.
Nieuport	1,472	Rhone	4,574	Gras, Escadrille de Chasse 48.
Caudron	—	—	—	Reservist Taubert, Escadrille F. 203.
Nieuport	1,552	Rhone	4,416	Sergt. Danguenger, Escadrille 37.
Nieuport	1,573	—	—	Charles Dumas, Escadrille 57.
Caudron	—	2 Rhone	—	Lieut. Maurice Hunbert, Sergt. Armand Mars.
Caudron	1,325	2 Rhone	3,281, 121	Cpl. Louis M. G. Schütze, Quillard.
Fl. Boat	316	Hispano	—	2nd Lieut. Charles Tesa and Gaston Guesne.

FRENCH MACHINES—SEPTEMBER.

Nieuport	1,276	Clerget	797	Georges Duc.
Nieuport	1,640	—	—	Dead.*
Caudron	1,574	2 Rhone	421, 664	Capt. Bertin.
Nieuport	146	Gnome	930	Lieut. Richard, Sergt. Rousseau.
Caudron	1,457	—	—	2nd Lieut. Antoine Durand, Sergt. Frenche.
Caudron	1,475	—	—	Cpl. Berthes, 2nd Lieut. Claudel.
Nieuport	—	2 Rhone	—	2nd Lieut. Charles Bordes.
Caudron	—	—	—	*Totally burnt. Shot down September 8th.
Nieuport	—	Gnome	850	*
Caudron	—	2 Rhone	5,470, 5,010	*
Caudron	2,61	—	44/42, 44/32	Auguste Trende, Cpl. Marcel Flaumann.
Nieuport	990	—	—	Spencer.
Nieuport	1,581	Rhone	3,899	2nd Lieut. de Roquefort.
Morane	—	Rhone	—	Capt., name unknown. Totally burned.
Nieuport	3,315	Rhone	821	Cpl. V. Boundet, Escadrille 112.
Nieuport	1,712	Rhone	5,046	2nd Lieut. Guy de Baumville.
Nieuport	3,315	—	—	Lieut. Masquellier.
Nieuport	1,706	Rhone	7,456	Adolf Maria Johann Baptiste le Conte Grandimaison.
Caudron	—	2 Rhone	3,173, 4,148	2nd Lieut. Georg. Vonause, 2nd Lieut. J. Roydellet.
Caudron	2,208	2 Rhone	—	Lieut. Maurice Mumier, Lieut. Andrée Hellon.
Caudron	2,644	Rhone	2,576	Chanoli, Escadrille 121.

A Zeppelin Raid Heroine.

BRAVERY on the part of a 13-year-old girl, Violet Buckingham, was rewarded at the Mansion House on November 25th, when the Lord Mayor presented the little heroine with a gold wrist-watch from the Carnegie Hero Trust Fund. The girl, when a bomb damaged the house in which she was, went upstairs, and bringing down a baby carried it to the hospital.

A Super-Zeppelin Wrecked.

TRAVELLERS arriving in Amsterdam from Munich last week reported that a super-Zeppelin was wrecked in the storm which raged on November 21st. The airship, which is said to have been on a maiden trip from Friedrichshaven to Wilhelmshaven, was blown out of its original course by the gale, and fell in a wood near Mainz. There was one survivor of a crew of 28, while the Zeppelin was wrecked beyond repair.

THE LATE SIR GEORGE WHITE, BART.

It was with tragic suddenness that Sir George White, Bart., the Founder and head of the British and Colonial Aeroplane Co., Ltd., passed away on the 22nd inst. Like Sir Hiram Maxim, the pioneering enterprise of Sir George White in other directions tended to obscure his splendid work in connection with aviation. In May, 1910, when the friends of aviation were comparatively few, Sir George saw the immense possibilities before the art and science, and founded the British and Colonial Aeroplane Co., Ltd., at Filton, near Bristol. Orders were few and far between, but Sir George White persevered, knowing that his enterprise, although it might be early, was bound to justify itself. And so it has proved. As to the progress of the "Bristol" company, as it is more familiarly known the world over, there is no need to recount it at length, for the pages of "FLIGHT" bear witness to that progress.

Sir George White was principally known for his work in connection with another form of transport, tramways, although he started life in a lawyer's office and was for many years head of the firm of Messrs. George White and Co., stockbrokers, of Bristol. In this connection it may be noted that as a mark of respect, the Bristol Stock Exchange was closed for the day of the funeral. Created a baronet in 1904, Sir George White has taken a prominent part in intellectual and philanthropic institutions of Bristol. As president of the Bristol Royal Infirmary, he not only organised the institution, but gave it many lavish gifts to clear it from debt and place its finances on a sound basis. He devoted much of his time to the care of wounded soldiers, for whom the new wing—the King Edward Memorial—of the infirmary was set apart; and to the work of the Red Cross Society, of the Bristol branch of which he was president. He was also president of the Victoria Hospital at Nice, to which he not only contributed £3,000 to enable the hospital to be completed and opened, but he also continued to take the greatest interest in the hospital, and assist it with money, encouragement and advice.

Sir George White, who was born in 1854, is succeeded in the baronetcy by his son, Mr. George Stanley White, who was born in 1882.



The late Sir George White, Bart., the founder of the famous Bristol Aeroplane works.

THE ROLL OF HONOUR.

REPORTED by the Admiralty:—

Killed.

Flight Sub-Lieut. A. J. Whetnall, R.N.

Missing.

Flight Sub-Lieut. W. H. Hope, R.N.

Died of Injuries.

1st Air Mech. L. C. de C. Thompson.

Previously reported Missing, now reported Prisoner of War in Germany.

2nd Air Mech. W. Sturdy.

Reported by the War Office:—

Killed.

2nd Lieut. H. E. Martin, R.F.C.

2587 Sergt. F. Barton, R.F.C.

1312 Sergt. G. Bromley, R.F.C.

8824 2nd Air Mech. C. F. Heatley, R.F.C.

Died of Wounds.

4396 1st Class Air-Mech. E. H. C. Foot, R.F.C., att. R.G.A.

Previously reported Missing, now reported Killed.

Lt. K. Mathewson, R.F.C.

Lt. T. Rees, Welsh Fus., att. R.F.C.

Previously reported Missing, now reported Died of Wounds as Prisoner of War in German hands.

2nd Lt. L. B. F. Morris, Queen's (R.W. Surrey), att. R.F.C.

Previously Missing, now reported Died as Prisoner of War in Turkish hands.

4473 Sergt. T. N. Palmer, R.F.C.

Died.

4602 1st Air Mech. W. E. Taylor, R.F.C.

Wounded.

Lt. J. V. Barry, A.S.C., att. R.F.C.

Lt. J. A. G. Brewis, Durham L.I., att. R.F.C.

2nd Lt. W. W. Fitzgerald, R.F.C.
2nd Lieut. T. R. Gilby, R.W. Kent, att. R.F.C.
Lt. R. Goudie, Highland L.I., att. R.F.C.
2nd Lieut. M. R. Helliwell, R.F.C.
2nd Lt. K. S. Henderson, R.F.C.
Capt. H. G. Rickards, R.F.A. and R.F.C.
2nd Lt. A. V. Shewell, Glouc., att. R.F.C.
2nd Lt. R. V. Tiry, London and R.F.C.
15355 2nd Air Mech. P. Brindle, R.F.C.
9755 2nd Air Mech. M. A. Mann, R.F.C.

Wounded—Shell-Shock.

7912 2nd Air Mech. J. Alexander, R.F.C.
12591 2nd Air Mech. W. G. Foreman, R.F.C.

Missing.

2nd Lieut. R. G. R. Allen, W. Yorks, att. R.F.C.
Lt. D. H. Bacon, R.F.C.
Lt. T. H. Clark, A.O.D., att. R.F.C.
Capt. S. E. Cowan, M.C., R.F.C.
2nd Lieut. W. C. Crawford, R.F.C.
2nd Lt. G. Doughty, R. Scots, att. R.F.C.
2nd Lieut. G. S. Hall, R.F.C.
2nd Lieut. J. C. Lees, R. Scots F. and R.F.C.
2nd Lieut. D. A. Macneill, R.F.C.
2nd Lieut. W. S. Fitz R. Saundby, Yorks, att. R.F.C.
2nd Lt. L. F. Struben, Dragoon Gds., att. R.F.C.
24715 Sergt. P. Snowdon, R.F.C.

Previously reported believed Taken Prisoners at Kut-el-Amara, now reported Prisoners of War.

4475 Sergt. F. Read, R.F.C.
4136 1st Air Mech. S. B. Welch, R.F.C.

Correction:

Killed.

2nd Lt. C. H. Bidmead, should read General List (not Shropshire L.I.) and R.F.C.

THE DEATH OF SIR HIRAM MAXIM.

By the death of Sir Hiram Maxim aviation has lost one of its notable pioneers, although the world-fame brought to Sir Hiram by his invention of the Maxim gun overshadowed his work in connection with aeronautics. Being of a very mechanical turn of mind, it was, perhaps, not unnatural that he should attack the problem of making a machine to navigate the air, and in 1894 he experimented at Baldwyn's Park, Bexley, with a giant biplane fitted with a steam engine of 400 h.p. So sure was the inventor that the machine would lift, that he had special guards fitted to the track to prevent the aeroplane rising more than a few inches. And they proved its undoing, for the lift led to the breaking of one of the axles, while one of the guards was torn up and catching the propeller smashed it, besides seriously damaging other parts of the machine. Those who are interested in these experiments will find a brief *résumé* of them, written by Sir Hiram Maxim, in "FLIGHT" of March, 1910. Although Sir Hiram was convinced of the practicability of his machine, he saw that he would have to abandon the steam plant on account of the amount of water required for a long flight. He therefore set to work to design an internal combustion engine, but a severe illness, followed by great pressure of work in connection with his many other inventions, led to the scheme being abandoned. In 1909 Sir Hiram Maxim built a new biplane, this time at Erith, and full details, with photographs and scale drawings of the completed machine, were given in "FLIGHT" of April 30th, 1910.

In 1909 Sir Hiram Maxim published a little book, "Artificial and Natural Flight," which set forth the results of Sir Hiram's experiments to ascertain the relative effects produced by winds of known velocity upon objects of different shape, and also the resistance offered by similar shaped bodies passing through the air. Coming as it did at a time when there was not a great deal of literature available of a practical nature, this book, although the experiments were unfinished and the results unchecked, proved of great use to designers in the early days.

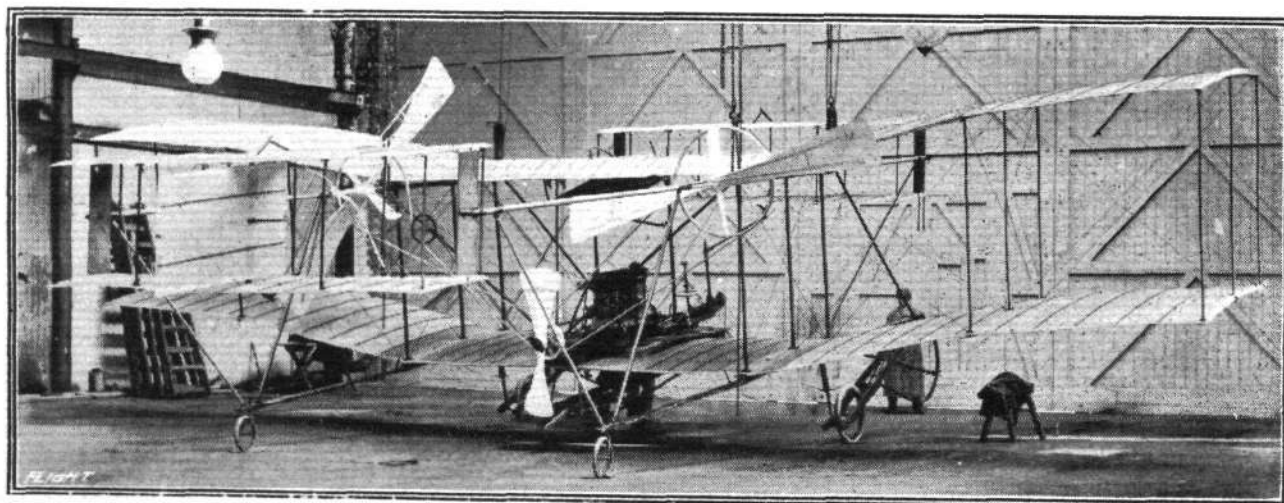
Sir Hiram Stevens Maxim had a frank, breezy nature, which won for him friends wherever he happened to be. Born at Sangerville, Maine, U.S.A., on February 5th, 1840, he started life as a coachbuilder, and tried his hand at various trades before coming to Europe in 1881. For the latter part of his life he made England his home, and, having been naturalised, he was knighted in 1901.

The funeral took place at Norwood Cemetery on November 28th, and among the mourners were Lady Maxim (widow), Master Maxim Joubert (grandson), the Hon. H. Fletcher Moulton (representing the Controller and the Munitions



The late Sir Hiram S. Maxim, whose name is so well known throughout the world as an inventive genius. Sir Hiram is seen at the control gear of the aeroplane which he designed and built in 1910.

Inventions Department), Sir Trevor Dawson and Mr. V. C. Vickers (representing Messrs. Vickers, Ltd., of which firm Sir Hiram Maxim was for many years a director, its title then being Vickers, Sons and Maxim)



The biplane which was the conception of the late Sir Hiram S. Maxim, of how man should fly. This machine was built by him in 1910, and a full description of it appeared in "FLIGHT" of April 30th, 1910.

The S.B.A.C. Still Growing.

RECENT recruits to the ranks of the Society of British Aircraft Constructors include the following:—

Ordinary Members.—Peter Brotherhood, Ltd.; Crossley, Motors, Ltd.; Hooper & Co., Ltd.; Willans & Robinson, Ltd.

Associate Members.—Aeronautical Instrument Co., Ltd.; Thos. Firth and Sons, Ltd.; J. Gliksten and Son, Ltd.; William Jessop and Son, Ltd.; Swift, Levick and Sons; S. Smith and Sons, Ltd.; Alexander Stephen and Sons, Ltd.

ANSWERS TO CORRESPONDENTS

If in doubt about anything aviatic, write to "FLIGHT" about it.

H. B. (Bedford Park).

We have been unable to discover the exact date on which the first Clerget engine was brought out, but at any rate so far back as in October, 1910, there were exhibited at the Paris Aero Salon two Clerget engines, one a four-cylinder vertical water-cooled, rated, we believe at 50 h.p., and another, an 8-cylinder Vee water-cooled engine, rated at 200 h.p., which was at that date probably the most powerful engine yet produced for use on aeroplanes. Whether Clerget had brought out any aero engine previous to that time we do not know.

H. H. W. (Barrow-in-Furness).

We regret that we cannot find the particulars of the Weiss man-carrying glider for which you ask. The usual method of finding the lift coefficient of a wing section is to test a small scale model in a wind tunnel, measuring the forces acting on it at certain speeds. If, as your question appears to imply, it is desired to estimate the lift coefficient of an actual machine, this can be done if the speed, weight and area of the machine are known, but the result will not then represent the actual lift coefficient as generally understood to be monoplane values, but a value corresponding to the particular aspect ratio, gap, and stagger of the machine in question. When it is desired to determine the lift per square ft. of a certain wing section from model experiments, use is made of the formula $\text{Lift/sq. ft.} = C_p v^2$, where C = the lift coefficient found by model experiment, ρ = density of the air, and v = the velocity of the machine. When v is in m.p.h. the value of ρ is 0.0051, and the equation becomes $\text{Lift/sq. ft.} = C \times 0.0051 \times v^2$. If a given machine is known to fly at 60 m.p.h., and the loading is known to be 4 lbs./sq. ft., we can obviously substitute in the formula, so that we have $C = \frac{\text{Lift per sq. ft.}}{0.0051 \times v^2} = \frac{4}{0.0051 \times 60^2} = 0.22$.

T. N. (Westminster).

The lift of a Zeppelin airship is always considerably in excess of the total weight when starting out on a journey, and when released by the crew that handle her, she would undoubtedly rise without any assistance from her engines provided there were no obstacles which had to be avoided in rising. A heavier-than-air machine is one which depends for its support on lifting surfaces moving at a certain velocity and deriving their lift from the motion through the air. Thus, for instance, an aeroplane is a heavier-than-air machine, since if the speed drops below a certain point it must inevitably come down. An airship, on the other hand, is a lighter-than-air machine, as it does not depend on its speed for lift, but can remain stationary without necessarily descending.

R. P. (Muswell Hill).

The letters L.V.G., A.E.G. and D.F.W., under which the respective German aeroplanes are known, are in each instance taken from the initial letters of the title of the firm that builds them. These are respectively: Luft-Verkehrs-Gesellschaft, Allgemeine-Elektricitäts-Gesellschaft, and Deutsche-Flugzeug-Werke. The object marked with a cross in the illustration of the L.V.G. which you enclosed, is the exhaust collector, which is designed to carry the exhaust gases up above the top wing, out of the way of the occupants. The number of revolutions of the engine are regulated by the throttle, which regulates the amount of gas drawn into the cylinders. The term "Tabloid" is sometimes applied to a very small machine, such as a Sopwith, Bristol, or Martinsyde scouting biplane.

F. W. (Acton).

The name "Spad" of the French machine is derived from the initial letters of the firm "Société Pour l'Aviation et ses Dérivés," and the "D" has not, as far as we are aware, any connection with Deperdussin. The full title of the firm is the Société Anonyme Spad pour l'Aviation et ses Dérivés.

W. W. (Eaton Square).

You would probably be able to get information from the High Commissioner. Most of the officers in the South African Flying Corps transferred to the R.F.C. and R.N.A.S. There are a great many difficulties in the way of flying in South Africa.

A. H. B. (Southwold).

You could not do better than study "The Aeroplane," by A. Fage, 6s. 6d.; "Aero Engines," by G. A. Burls, 8s. 10d.; "Learning to Fly," by C. Grahame-White, 2s. 10d.; and "Aeroplane Design," by F. S. Barnwell, 2s. 10d. They can be obtained from "FLIGHT" office at the prices stated.

A. N. W. (Southampton).

Flying Officer is a grading in the Royal Flying Corps, while Flight Sub-Lieutenant is a rank in the Royal Naval Air Service. While on probation and learning to fly an R.N.A.S. officer is known as a Probationary Flight Officer.

A. C. C. (West Bridgford).

The possession of a R.Ae.C. certificate does not entitle you to a commission. Fees are about £125. It is impossible to say how long the training would take; it depends on the weather and the pupils' temperament. It might be rushed through in three weeks, or it might take three months.

J. P. R.

Apply to the Inventions Bureau of the Ministry of Munitions, 10, Princes Street, Westminster, S.W.

"Rolls-Royce" (Birkenhead).

Yes. Apply to Adastral House, E.C., for particulars. There would probably be no need for you to attest, as you would no doubt be simply transferred, if accepted.

"Marine Engineer."

Apply to the Admiralty for the necessary forms, and, having filled them up, send them to the Director of Air Services, Admiralty, S.W. Age limits, 18 to 23. No. The Admiralty will arrange for your training.

R. A. B. (Rock Ferry).

1. As arranged. 2. You should apply to Adastral House for these particulars. 3. The pay of officers in the R.F.C. was set out on p.

J. J. (Brooklands).

See reply to "Marine Engineer."

C. E. F. (Ashford).

You should write to the officer in charge R.F.C. Depot, Farnborough. Shall be pleased to receive the photograph of the model.

R. F. W. (Leatherhead).

We can only suggest that you should inquire of the officer in charge R.F.C. Depot, Farnborough. There is a good deal of drilling and marching to do.

J. C. B. (Woodford Green).

If you are accepted for a commission in the R.F.C. or the R.N.A.S., you will probably have the £75 refunded under certain conditions.

N. B. (Sale).

A Probationary Flight Officer receives 10s. a day plus 4s. a day for flying risk. When confirmed in rank as a Flight Sub-Lieutenant he will receive a further 4s. a day. All R.N.A.S. officers wear the eagle badge.

Seventeen (Forest Gate).

See reply to A. H. B. above. Whenever an opportunity offers, you should make a close study of the constructional details of any aeroplane which you can get near.

W. W. (Stratford-on-Avon).

The German airship brought down at Cuffley was the "L. 21," a large rigid airship of the Schütte-Lanz type. "L. 20" was wrecked off the Norwegian coast near Stavanger on May 3rd, 1916, while "L. 19" was lost in the North Sea on February 3rd, 1916.

AWARDS FOR R.F.C. OFFICERS.

IN as upplement to the *London Gazette* issued on November 23rd it was announced :—

The King has been graciously pleased to approve of the undermentioned honour and reward for distinguished service in the field, with effect from June 3rd, 1916 :—

To be Companion of the Distinguished Service Order.

Capt. (Temp. Lt.-Col.) W. R. FREEMAN, M.C., Manch. R. and R.F.C.

IN the list of honours announced in a special supplement to the *London Gazette* issued on November 26th it was stated :—

The undermentioned has been awarded a second Bar to his Distinguished Service Order for a subsequent act of conspicuous gallantry :—

2nd Lt. (Temp. Capt.) A. BALL, M.C., D.S.O., Notts and Derby R.

For conspicuous gallantry in action. He attacked three hostile machines and brought one down, displaying great courage and skill. He has brought down eight hostile machines in a short period, and has forced many others to land. (The Distinguished Service Order was awarded in *London Gazette* dated September 26th, 1916. First Bar was awarded in *London Gazette* dated September 26th, 1916.)

The undermentioned have been awarded a Bar to their Distinguished Service Order for subsequent acts of conspicuous gallantry :—

Capt. S. GRANT-DALTON, D.S.O., Yorks R.

For conspicuous gallantry in action. He attacked two hostile aeroplanes, although quite unsupported. Later after being attacked by another enemy machine, and wounded in three places, he brought his machine back and landed safely. (The Distinguished Service Order was awarded in *London Gazette* dated July 27th, 1916.)

It was also stated that His Majesty the King has been graciously pleased to confer the Military Cross on the undermentioned officers and warrant officers in recognition of their gallantry and devotion to duty in the field :—

Lt. (Temp. Capt.) H. B. DAVEY, N. Staff. R.

For conspicuous gallantry in action. He led a reconnaissance of six machines with great courage and skill. Later, although attacked by 10 hostile machines, he continued to carry out this reconnaissance. He has previously done fine work.

Lt. (Temp. Capt.) F. H. JENKINS, R.F.C.

For conspicuous gallantry in action. He flew 150 miles at night and bombed an enemy aerodrome, descending to 500 ft. under heavy fire. He has throughout done excellent work in reconnaissance.

2nd Lt. (Temp. Capt.) T. MAXWELL-SCOTT, R.F.C.

For conspicuous gallantry in action. He carried out artillery reconnaissances with great courage and determina-

tion. Later, diving to a low altitude, he attacked an enemy communication trench with his machine gun.

2nd Lt. (Temp. Capt.) S. W. PRICE, R.F.C.

For conspicuous gallantry in action. During a reconnaissance he was attacked by a large number of enemy machines. He manoeuvred his machine with great skill, and fought down a hostile machine. On four previous occasions he and his pilot have accounted for enemy machines.

2nd Lt. L. H. SCOTT, Middlesex R.

He and his pilot pursued a hostile aeroplane for some six miles into the enemys' territory, and there shot it down. He has on many previous occasions done very fine work.

Lt. P. C. SHERREN, Can. Inf.

He led a successful bomb raid, collecting and landing his formation with great skill. Later, he dropped bombs on an ammunition train from 500 ft., causing much damage.

2nd Lt. (Temp. Capt.) G. B. WARD, Gen. List.

He flew over the enemy's lines at a height of 1,000 ft. under heavy fire, and carried out a very successful artillery reconnaissance. He has previously done very fine work.

Temp. 2nd Lieut. T. J. WEST, R.F.C.

For conspicuous gallantry in action. He attacked an enemy machine and brought it down, displaying great courage and ability.

The following have been awarded a Bar to their Military Cross for subsequent acts of conspicuous gallantry :—

2nd Lt. A. S. C. MACLAREN, M.C., K.O. Sco. Bord.

He attacked and brought down an enemy machine from a height of 5,000 ft. He has on many previous occasions done very fine work. (M.C. awarded in *London Gazette* dated July 27th, 1916.)

Lt. (Temp. Capt.) F. F. MINCHIN, M.C., P.P.C.L.I.

He flew 150 miles at night to bomb an enemy aerodrome, descending to 500 ft., and doing serious damage. On another occasion he landed 45 miles from our line to pick up the pilot of a damaged machine in a hostile country. (M.C. awarded in *London Gazette* dated May 31st, 1916.)

Lt. (Temp. Capt.) G. R. M. REID, M.C., Arg. and Suthd. Highrs.

He with his observer pursued a hostile aeroplane for some six miles into the enemy's territory, and there shot it down. He has on many previous occasions done very fine work. (M.C. awarded in *London Gazette* dated June 24th, 1916.)

2nd Lt. (Temp. Capt.) A. M. VAUCOUR, M.C., R.F.A.

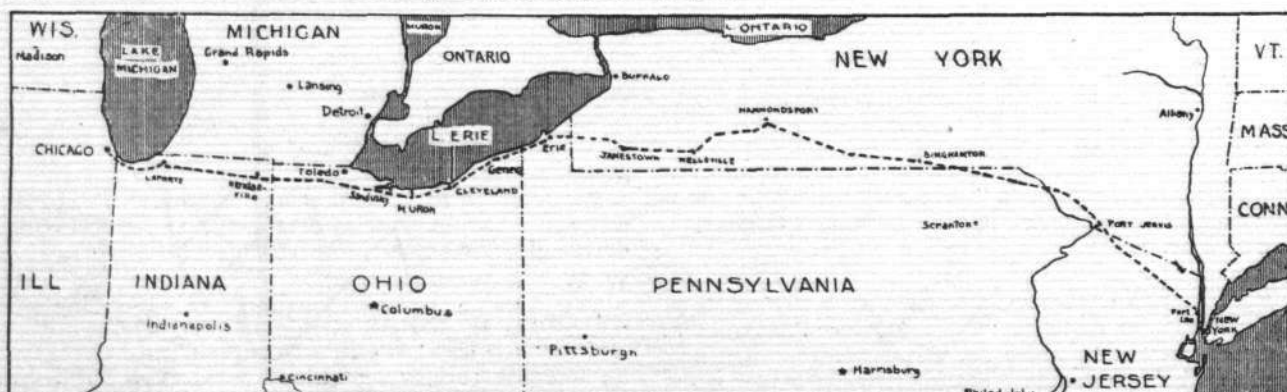
He attacked 10 hostile machines and completely scattered their formation. Previously, while returning with a perforated petrol tank, he shot down an enemy machine. Later, he shot down a hostile machine, being engaged with eight altogether. On another occasion he and his observer shot down two hostile machines. (M.C. awarded in *London Gazette* dated November 4th, 1915.)

Victor Carlstrom's Chicago-New York Flight.

SOME details are now to hand regarding the flight made on November 2nd and 3rd by Victor Carlstrom in a 200 h.p. Curtiss (J.N. twin) biplane from Chicago to New York. Leaving Chicago at 7h. 9m. 30s. a.m.; he made the 452 miles to Erie in 4 hrs. 17 mins. 30 secs., and then had just over three hours' rest. The 200 miles of the next stage to Hammondsport was completed in 1 hr. 50 mins. Leaving Hammondsport

the next morning, the final 315 miles to Governor's Island occupied 2 hrs. 21 mins., the time of arrival being 8.56 a.m.

Carlstrom carried a bag of mails, which included a packet of post-cards to be sent by the submarine liner "Deutschland," among the addressees being the German Emperor, Field-Marshal von Hindenburg, Dr. von Bethmann-Hollweg, Herr von Jagow and the editors of the chief German newspapers.





ENGINES, Engines, Engines!

ENGINES larger and more powerful for our scouting squadrons are absolutely vital if we are to hold up our end against the German efforts to regain ascendancy from above. There is no time to lose, as the loss of even partial or temporary control must have a telling effect upon our efficiency in more directions than one. It is moreover only due to our splendid flying men that there should be no chance of their being handicapped for want of practical forethought. They will fight against any odds, but higher mechanical powers of navigation must and will tell in the end. So let there be no lagging in filling the requirements of the R.F.C. Already the Huns are getting their superior strafers into action. Shoals of them are likely to develop rapidly—only too rapidly, and a grave responsibility will rest with those at home if our side is not equipped speedily to meet the coming menace.

"CURFEW shall ring to-night," is the revived motto of Wigan. Last Saturday night this ancient custom was reinstated as a modern convenience of our own times, as a warning for the subduing of lights.

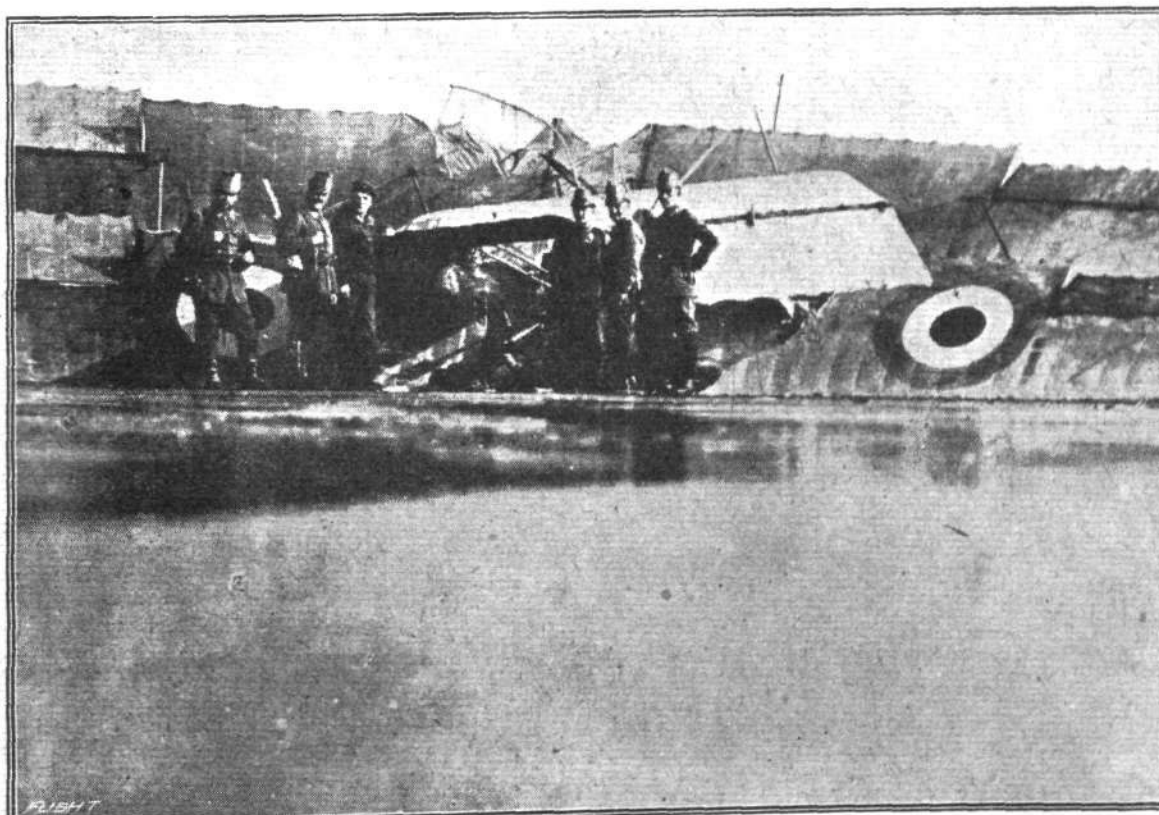
FOR keeping green the memory of the murderous distribution of bombs from the piratical airships of the Hun, no better method could be adopted than the wide distribution of "relics" from the strafed airships themselves. To this end the gift is to be welcomed of the Army Council to the Royal United Service Institution Museum, Whitehall, of two incendiary bombs which failed to explode, a burnt-out incendiary bomb, a naval cap of a German officer, and other relics of the visit of Zeppelins on September 3rd.

OPPORTUNITY will be afforded next month to follow some of the work of our aircraft in connection with the naval and military operations in different spheres of action. A series of films for cinema and other theatres has been completed, and will, in December, be produced by all those houses seeking the very latest in war doings.

In this very admirable series, which had a private "trial" run last week at the West End Cinema, the whole of the procedure of launching a seaplane from the aeroplane mother ship "Ark Royal," now out in the Aegean, is most convincingly reproduced. Following the departure from the decks, the audience will have the added advantage of accompanying the pilot in his flight, as a cinematographer upon this occasion occupied the observer's seat and obtained a running record of Mother Earth as she appears under such conditions. Away below are seen amongst other novel scenes the closely packed houses of the Greek villages. A trip is made in one of our "Blimps." The craft emerges from its shed, and the whole process of launching, &c., is witnessed on the screen. Then follow some vivid earth pictures, giving a slight idea of what shelling enemy trenches—in this case Bulgarian—means, the method of firing concealed guns, the transport of wounded, and, by way of contrast, the manipulation of our submarines and the working of the latest thing in submarine big guns. The new war films are likely to take on with some grip.

MR. LANCHESTER's new book, "The Flying Machine from an Engineering Standpoint," which has been expected for some time, and has, owing to the shorthandedness in the publishing and printing trades, been unavoidably delayed, will be published by Messrs. Constable early in December.

WHY is it so many of the military, who indirectly are part of most of the present restricting orders on public freedom of action, should be transgressors of the very regulations which are associated with war time operations? Time and again it is an officer in charge who ridicules the idea that his regiment should have to bother about exposed lights, &c. So again a section of the clergy still assert their claim to clang their bells after dark and be—well tommy-rotted to the administrators of the law. At least that is the way the Rev. E. Coulthard, vicar of Winchmore Hill, expressed his views to the local constable the other day when asked to stop the ringing of his peal of bells. These leaders should rather be the first



WINGED!
—A French
biplane
shot down
on the
coast of
Flanders.

to recognise the value of good example, and it would appear a bit paltry under the circumstances that the pugnacious vicar when actually confronted with the majesty of the law should attempt to shift the responsibility on to the shoulders of his churchwardens. But as the latter had forgotten their names and addresses, the constable contented himself with laying the blame on the vicar. Being a first offence, he just got a lecture, but it should serve as a warning for others like-minded.

SHORT lectures three days a week, with aircraft and their part in the war as subject, should be fascinating for those associated with their construction. Already the effect has been, at the aeroplane factory where the course has been instituted, to help both efficiency and output. There is room for the example to be followed in other directions. It takes the workers away from being merely automata, without interest in the particular part allotted to them to make, once it has left their hands.

GEORGES CARPENTIER is the type of man that would be distinguished in whatever phase of life he graduated. As a boxer of the most telling nature he has gained the respect and admiration of Britons, and that, in this sport, is the world. In the war he scored from the first when he joined up with the French army, and in the French Air Service his winning of the Military Cross is long since known to our readers. By way of a rest last Sunday he returned to his old love, the ring, but with no idea of personal aggrandisement. It was just to do a good turn at the Paris Trocadero, with the aid of some other lesser French champions, to the fund for French wounded soldiers, brothers in arms, who had not been as fortunate as Carpentier in the hazards of war. His appearance was welcome, as it gave a chance to know that the champion was just as lively and as fit as ever.

THE Air Board powers discussion—duly muzzled—in Parliament is down for Tuesday next. The Air Board's report, however, is *taboo*.

TEN YEARS AGO.

Excerpts from the "Auto," ("FLIGHT's" precursor and sister journal) of December, 1906. "FLIGHT" was founded in 1908.

M. SANTOS DUMONT AND HIS AEROPLANES.

Not satisfied with the driving force at his disposal in the

machine with which he had made the world-wide record, M. Santos Dumont is already arranging for a new machine with 100 h.p. Antoinette motor to be built, which it is calculated will only weigh 100 kilograms.

"LA PATRIE."

On the 22nd instant the great airship went out again, leaving the shed at 8 o'clock in the morning. The motor was started and tested up till ten minutes past nine, and then the airship was lead off on the guide rope to the usual starting point on the plain near Moisson. There were six passengers on board, including Lieut. Bois and MM. Juchmès and Rey. The airship was let go at 9.32, rose to a height of 80 metres—at which height it was in a position of equilibrium—and spent 30 minutes performing various evolutions under the pilotage of Lieut. Bois, who actually steered the airship for the first time.

M. SANTOS DUMONT AT WORK.

M. Santos Dumont made another trial with his repaired aeroplane on Monday, numerous friends being present, but the motor unfortunately failed to give satisfaction, one of the cylinders not operating properly, and it had to be dismounted for examination. As soon as the engine is right M. Santos Dumont will make another trial, and from the look of things, we may hope that almost any day he may succeed in carrying off the Deutsch-Archdeacon Prize.

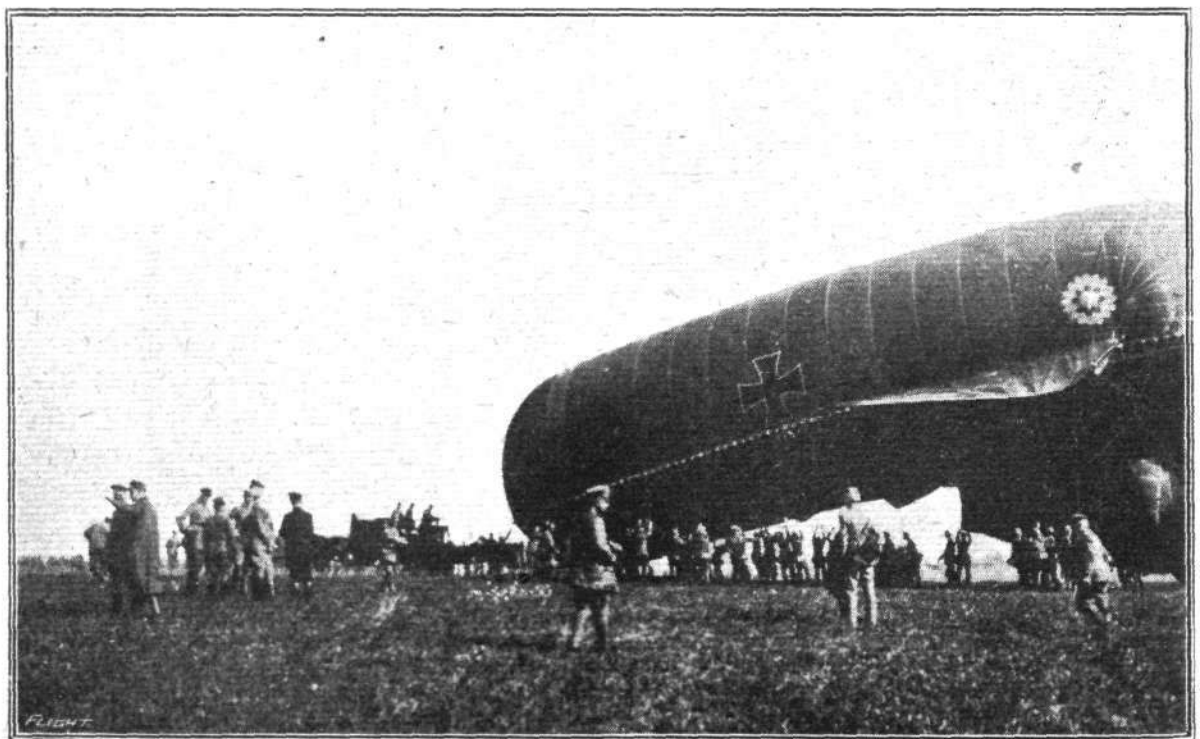
THE COMTE DE LA VAUX'S MACHINE.

The Comte de la Vaux has also become converted to the aeroplane, and is devising, in conjunction with MM. Victor Tatin and Maurice Mallet, an aeroplane the general outline of which closely resembles a bird, that is to say, it has a wide outstretched aerocurve and a long rear projection, at the end of which are both vertical and horizontal tails.

THE VUIA AEROPLANE.

M. Vuia, who last year constructed an aeroplane of novel form has just been carrying out his experiments at Bagatelle, in the presence of M. Santos Dumont. The apparatus, consists of a structure carrying a carbonic acid motor, which operates two immense wings. The weight of the whole is 280 kilos. For the purpose of increasing the speed M. Vuia has provided the front of the car with two propellers. We may add that in consequence of a slight accident the experiments had to be interrupted, but are shortly to be recommenced, when M. Vuia anticipates leaving the ground and travelling a greater distance than M. Santos Dumont has done.

Neutral war correspondents watching the sending up of a German kite balloon on the Somme front.



AVIATION IN PARLIAMENT.

Air Raid Insurance.

SIR EDWARD BEAUCHAMP, in the House of Commons on November 21st, asked the Prime Minister whether his attention has been called by the War Damage Committee, which claims to represent 718 municipalities, with a population of over 28,000,000, to the unfairness of the present scheme of insurance against aircraft and bombardment, which imposes a burden upon citizens unequal in its incidence because determined by geographical situation; and whether the Government will reconsider the question, with a view to giving compensation to owners of property and goods that have already been, or may in future be, damaged or destroyed either by aircraft or bombardment?

Mr. Noel Buxton asked the Prime Minister whether he will consider the desirability of granting full compensation to owners of property damaged by aircraft and bombardment, in view of the unequal incidence of the existing system of insurance on different parts of the country?

The Prime Minister: The answer to the first part of Question 79 is in the affirmative. As I have already informed the House, the Government are considering whether any alteration is necessary in their policy as regards injuries and loss of life in this country due to enemy operations. But I see no reason to alter the scheme of insurance against material losses due to this cause, which I believe is generally regarded as adequate?

Sir E. Beauchamp: Cannot the right hon. gentleman accept the suggestion in its entirety, so that the additional premiums charged for loss and damage due to bombardment should be remitted and dispensed with, as this charge falls on those on the coast who have already suffered severely?

The Prime Minister: That is being considered, certainly.

Mr. Hogge: When will a decision be given as to awarding compensation in cases in which lives have been lost?

The Prime Minister: I cannot say. It is an urgent matter.

Mr. Billing: In the event of there being a change in Government policy, and this additional compensation being given, will it be given in the case of those who have lost their lives and property since the outbreak of war?

The Prime Minister: That is a hypothetical question to which I can only give a contingent answer.

The Air Board Report.

MR. ASHLEY asked the Prime Minister whether he will give an early day for the discussion of the motion on the powers of the Air Board, standing in the name of several hon. members?

The Prime Minister: Yes, Sir; facilities will certainly be given for this discussion, but I cannot yet name an exact date.

Mr. Ashley: May we have this discussion before the decision of the War Committee and not afterwards, so that we may express an opinion on the subject?

The Prime Minister: I cannot promise that, but the House will certainly have a full opportunity of discussing it.

Mr. Billing: Have the naval branches of the Air Service been held up pending these constantly postponed decisions of the Government?

The Prime Minister: No, Sir.

The Royal Naval Air Service.

MR. JOYNSON-HICKS, on November 22nd, asked the First Lord of the Admiralty what percentage of the personnel of the Royal Naval Air Service are pilots; what percentage are on service in Great Britain; and, of the latter, what percentage are of military age?

Dr. Macnamara: The percentage of trained pilots on the total personnel of the Royal Naval Air Service (officers and ratings) is 3.2; the percentage of pilots under training compared with the total personnel is 1.7, making a total of 4.9 per cent. on the total personnel of the Royal Naval Air Service. Of the trained pilots in the Royal Naval Air Service, 47.7 per cent. are serving abroad leaving 52.3 per cent. serving at home. All the latter are between the ages of 18 and 41, and include pilots for the "Lighter-than-Air" side and those employed on training and instructional work.

Transfers from R.N.A.S. to R.F.C.

MR. JOYNSON-HICKS asked whether several officers of the Royal Naval Air Service have applied for transfers to the

Royal Flying Corps; and why, as the latter corps needs pilots, the transfers have been refused?

Dr. Macnamara: As far as can be traced, three applications have recently been received from Royal Naval Air Service pilots to transfer to the Royal Flying Corps, two of whom wished to transfer as pilots and one as an observer. One of these officers was a trained airship pilot and the others were trained seaplane pilots. All were trained in types of aircraft peculiar to the Royal Naval Air Service, and it was considered they were doing better service in the Royal Naval Air Service, where their services were urgently required, than they would have done had they been transferred to the Royal Flying Corps.

Admiralty Aeroplane Contracts.

MR. JOYNSON-HICKS asked the First Lord of the Admiralty (1) whether he is aware that in the early part of the war, one Lyman J. Seely, selling agent of an American aeroplane factory, informed his company that, through the influence in London of an English barrister, he would be able to get a large order for aeroplanes if he were allowed a commission of 15 per cent., as that was the usual rate for such business, in addition to the 1 per cent. which had up to that date been his previous rate for obtaining orders; and, if so, what steps he proposes to take; and (2) whether he is aware that in certain large orders placed in America for the supply of aeroplanes, there was added to the price a sum of 15 per cent., or one-sixth of the total order, amounting to some millions of dollars, for disbursements in England for securing the Admiralty order; whether various payments on account of these commissions have been made by the vendors to a certain English barrister; what precisely were the services rendered by him; whether the Admiralty has made any inquiry as to the origin and destination of this commission; and whether there was any necessity for paying a price to cover such a commission when the vendors were in direct communication with the Admiralty, and there was both a willing seller and a willing purchaser?

Dr. Macnamara: We are informed that the gentlemen referred to represented the company in this country and were entitled to receive certain payments or commissions under the terms of the agreements between the company and themselves. The agreements, we learn, do not merely deal with agents' selling commissions, but with patent rights and other matters. During the course of an examination of accounts last July, it appeared that payment of commissions to agents to the extent of 16 per cent. of the contract price was being made. We objected and asked for explanations, and further inquiries are proceeding in the States. I should add that in the matter of our inquiries the company is giving us every assistance. I do not wish to prejudge the case one way or another, but it appears to be clear that the payments were made solely to the two persons referred to under the business agreements subsisting between them and their agents in this particular case.

Mr. Joynson-Hicks: Will the right hon. gentleman make inquiry whether these commissions were paid, as suggested in the question, for influencing business at the Admiralty? May we take it it is to be rigorously inquired into? If so, I will postpone any further questions for the present.

Dr. Macnamara: An inquiry is now being held into the accounts, in which the company is assisting. The point my hon. friend puts is certainly one which will be fully gone into; I will give him that assurance.

Mr. G. Faber: Can the right hon. gentleman say anything about the barrister mentioned in the first question?

Dr. Macnamara: Obviously that is a question which will arise on the inquiry I have promised.

Mr. Ashley: Does it not mean that if the Government enable the company to pay 16 per cent. to their agents they are paying too much for the aeroplanes?

Dr. Macnamara: I have said I am anxious not to prejudge the question. I do not think I ought to be called upon to answer questions in view of the promised inquiry. The House will have full opportunity of considering on the Report of the Public Accounts Committee.

Mr. Ashley: But that Committee will not know the facts for 18 months?

Mr. Joynson-Hicks: Might we not have a small Parliamentary Inquiry into Admiralty contracts, as to which there is a great deal of dissatisfaction?

Dr. Macnamara: I think we had better have the examination of the accounts first, and then I will put the other points to the First Lord.

Salvage Money for Zepp. Wreckers.

COLONEL LOCKWOOD asked the hon. member for Rugby, as the Parliamentary Representative of the Air Board, if, in view of officers of flying corps being forbidden to accept public money for services rendered in the air, the Government will consider the question of allowing salvage money for bringing down airships, in the same way as salvage money is now awarded for sinking ships of the enemy at sea?

Major Baird (*representing the Air Board*): I may refer my right hon. and gallant friend to the reply given by the Prime Minister to a similar question on the 8th instant. The proposal contained in his question involves considerations of military discipline and administration, and it is receiving the careful attention of the Departments concerned. I am afraid that I cannot say more at present?

Aeroplane Prices.

MR. JOYNSON-HICKS asked the hon. member for Rugby, as the Parliamentary representative of the Air Board, whether he can give any figures showing the prices paid by the Royal Flying Corps and the Royal Naval Air Service respectively for the same aeroplane?

Major Baird: I regret that I cannot supply figures of the kind referred to. Variations of price for the same machine may well rise, among other causes, from the differences in the number of machines ordered and in the degree of urgency with which they are required. I can assure my hon. friend that this is a matter in which all possible measures are taken to secure co-operation between the two Services.

Air Raid Insurance.

MR. FELL asked the President of the Board of Trade (1) if he can state the percentage of the amount of damage by air or sea raid of premises which have been insured com-

pared with the premises damaged but not insured; and if a report on the working of the aircraft insurance scheme of the Government will be presented shortly; and (2) if the Government has a considerable sum of money in hand on account of the Government aircraft insurance scheme; and if it is proposed to reduce the rates for insurance in consequence in the near future?

Mr. Pretymann: It is not possible to estimate what percentage of the property damaged by hostile aircraft or bombardment was insured and what percentage was not insured, and I do not think the time has yet come for publishing the accounts of the Government aircraft insurance scheme. The question whether any alteration should be made in the rate of premium charged is under consideration.

Mr. Fell: Is it not possible to say whether the larger part of the premises destroyed or injured by these raids are insured or not?

Mr. Pretymann: We have the particulars of the insured premises which are injured, but not necessarily all the particulars of the non-insured premises.

Promotion in the Royal Flying Corps.

MR. JOYNSON-HICKS, on November 23rd, asked the hon. member for Rugby, as the Parliamentary Representative of the Air Board, whether he is aware that officers joining the Royal Flying Corps lose their regimental promotion and that there is a considerable block in the promotion in the lower ranks of the Royal Flying Corps; and whether he can make a statement on the subject?

Mr. Forster: The only officers who can be said to lose their regimental promotion on joining the Royal Flying Corps are those of the New Armies. These officers leave their regiments on joining the Royal Flying Corps and are placed on the General List. There is no block of promotion in the lower ranks of the Royal Flying Corps; promotion, on the contrary, is very rapid.



Casualties.

Second Lieutenant THURSTAN FRANCIS BASSETT-SMITH, R.F.C., aged 19 years, who died in hospital on November 23rd from wounds, was the eldest son of Mary and Walter Bassett-Smith.

Lieutenant EYNON GEORGE ARTHUR BOWEN, R.G.A. and R.F.C., reported missing on September 8th, since reported died the same day, was the son of the late Eynon George Rice Bowen, of Troeddyrnan, Newcastle-Emlyn, and Mrs. Bowen, of Hambrook, Bristol. Born in 1893, he was educated at Braidlea, Stoke Bishop, and was a scholar at Sherborne. He entered Woolwich in January, 1912, and was gazetted to the R.G.A. in December, 1913. He went to the front with a heavy battery in June, 1915, and in August became an observer, R.F.C. He passed as a pilot in May, 1916, and returned to the front.

Lieutenant ALFRED VERNON OLIVER-JONES, R.F.A., attached R.F.C., who was reported missing and now officially reported killed on July 21st, was the elder son of the late William Oliver-Jones, nephew and adopted son of Mr. Alfred Taylor-Jones, of Wybourne Grange, Tunbridge Wells. He obtained a commission in the R.F.A. in October, 1914, and went to the front on February 4th, 1915. He was seriously wounded at the battle of Neuve Chapelle on July 9th, 1915. He subsequently joined the R.F.C., and became a qualified observer on March 11th last.

Sub-Lieut. CEDRIC LEE, R.N.V.R., reported killed in action, will be remembered as the designer of the curious monoplane with annular-shaped plane with which he experimented at Shoreham in 1913 and 1914, it being piloted by Mr. Gordon England and Mr. Gordon Bell. Mr. Cedric Lee intended flying a machine of this type in the Gordon-Bennett race of 1914, but the war caused the abandonment of the project.



More British Flyers in Roumania.

ACCORDING to a message issued by Reuter, further British aeroplanes and pilots have reached Bucharest, after

On the outbreak of war Mr. Cedric Lee joined the ranks of the Royal Naval Division, and recently was given a commission. He was the younger son of Mr. and Mrs. Harold Lee, of Fairfield, Broughton Park, Manchester, and was 34 years of age.

Wounded.

Lieutenant ARTHUR V. SHEWELL, Gloucestershire Regiment, attached R.F.C., who has been wounded in a fight with enemy aeroplanes, is the elder son of the late Major Arthur Shewell, of the Indian Army, and grandson of the late Major-General Shewell, of Cheltenham.

Missing.

Lieutenant NORMAN MIDDLEBROOK, son of Mr. E. H. Middlebrook, a well-known Leeds solicitor, and nephew of Sir William Middlebrook, M.P., who has been missing for some weeks, has sent a postcard in which he says he is a prisoner. A student at Repton when war broke out, he was given a commission in the Rifle Brigade. Later he was transferred to the R.F.C. He is 19 years of age.

Married and to be Married.

The marriage of Mr. ROCKINGHAM GILL, R.A. and R.F.C., and Miss CHRISTINA COURT TREATT will take place at St. Cuthbert's Church, Philbeach Gardens, S.W., at 2.30 p.m., on Saturday, December 2nd, not on December 9th as first announced.

The marriage took place last week between Lieutenant A. M. Walters, R.F.C., eldest son of Arthur M. Walters, Holmwood, Surrey, and SYBIL, younger daughter of the late Mr. H. S. EVERETT and Mrs. EVERETT, Boston, Mass., U.S.A.

Items.

The will of the HON. HENRY ALLEN ROLLS, of Tower House, Bletchingley, second son of the 1st Lord Llangattock, and elder brother of the Hon. Charles Rolls, has been sworn at £55,102.

very long flights, to join the British aircraft already in Roumania, and to reinforce the British and French aerial forces now operating with the Roumanian army.

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

General Headquarters, November 21st, 9 p.m.

"Yesterday our aeroplanes co-operated successfully with our artillery. Two of our machines are missing."

General Headquarters, November 22nd, 9.25 p.m.

"During the night of the 20th-21st our aeroplanes attacked enemy railway stations, billets and transports with bombs and machine-gun fire. All our machines returned safely."

Admiralty, November 23rd.

"During the course of yesterday afternoon (22nd inst.) an attack was carried out by British naval aeroplanes on the sea-plane sheds at Zeebrugge and on the enemy's torpedo-boat destroyers lying alongside the mole. Observers state that a destroyer was hit and damage was done to the sheds. All our machines returned safely."

[A French official communiqué stated that 34 bombs were dropped.]

General Headquarters, November 23rd, 9.45 p.m.

"Yesterday the enemy showed considerable enterprise in the air, and crossed our line. Three of his aeroplanes fell into our hands, while a fourth was driven down on his own side of the line. One of our machines is missing."

War Office, November 24th.

"Salonica.—On the Doiran front British aeroplanes successfully bombed and damaged the enemy lines."

General Headquarters, November 24th.

"The weather continues stormy. Yesterday, in spite of unfavourable conditions, our aircraft made reconnaissances and co-operated with the artillery. One of our machines has not returned."

General Headquarters, November 24th, 9.45 p.m.

"Yesterday much successful work was accomplished by our aircraft. Twelve of our machines encountered an enemy formation of 20 aeroplanes, and as a result of the fight the hostile formation dispersed. One of the enemy machines was destroyed, and several others driven down damaged. All our own machines returned safely. In other fights in the air four of the enemy's aeroplanes were destroyed. Three of our machines are missing."

War Office, November 26th.

"Salonica.—On the Struma front our aeroplanes successfully bombed the enemy aerodrome at Drama."

General Headquarters, November 27th, 10.10 p.m.

"Yesterday, in spite of the indifferent weather, our aeroplanes co-operated successfully with our artillery, and also bombed several points of military importance. Two of our machines are missing."

French.

Paris, November 21st.

"Last night our bombarding aeroplanes dropped 100 bombs on the enemy bivouacs behind the Somme front."

Paris, November 23rd.

"Second Lieut. Guynemer brought down during the day his twenty-second German machine. The enemy aeroplane came crashing to the ground near St. Christ (region of the Somme). Our bombarding aeroplanes yesterday dropped many bombs on the railway stations and bivouacs of the enemy on the Somme front."

"Salonica.—Our aeroplanes bombarded enemy encampments in the Topolani and Prilep regions. In the course of an aerial fight one of our aeroplanes brought down two enemy machines in the Drama district."

Paris, November 24th.

"Yesterday in Lorraine three British aeroplanes fought an engagement with several German machines. One enemy machine was brought down in the forest of Gremece."

"On the same day on the Somme front our aviators fought about forty engagements, in the course of which five machines were brought down. Sergt. Flachaire brought down his sixth machine near Manancon, and Lieut. Doullin his tenth south of Vaux Wood."

"It is confirmed that on November 22nd Second Lieut. Guynemer brought down a second enemy machine in the region of Falvy. This brings the number of aeroplanes brought down by this pilot to 23. Six of our machines dropped 15 bombs of 120 mm. on Bruyères. Another of our air

squadrons carried out a bombardment of the aerodrome of Griselles. Between 3.45 p.m. and 7 p.m. 171 bombs of 120 mm. were dropped. Last night, between 9.30 p.m. and 1.10 a.m., four of our machines bombarded the blast furnaces and factories of Voelklingen (on the Sarre). During this expedition 12 bombs of 120 mm. and 12 of 155 mm. were dropped, and appear to have been well placed. Our machines returned unharmed."

"Yesterday afternoon a German aeroplane was brought down by the fire of our anti-aircraft guns. The machine fell to the north of Berry-au-Bac. The same day Sergt.-Major Viallet brought down his sixth German machine near Moislains, in the Somme region."

Paris, November 25th.

"Yesterday, between 11 a.m. and 1 p.m., a group of aeroplanes of the British Naval Air Service bombarded the blast furnaces of Dillingen (in the region of the Saar). During this expedition a ton of explosives was dropped. Most of the projectiles struck their mark. An enemy aeroplane was brought down during the return journey."

Paris, November 26th.

"Salonica.—British aeroplanes bombarded the enemy camps in the region of Neohori, at the mouth of the Struma."

Paris, November 27th.

"A group of our aeroplanes last night bombarded the aerodromes of Guizancourt and Matigny. The projectiles successfully struck their objectives."

Russian.

Petrograd, November 24th.

"In the region of the little hamlet of Verb, north of Romontz, an Austrian aeroplane was compelled to descend and the airmen were taken prisoners."

"On the River Bistritza our airmen successfully threw bombs on the enemy's artillery depôt in the village of Pavoltcho, on the railway north-west of Stanislavov. Our scouts made a series of successful reconnaissances in the region Kosmatch and Poroge, north-west of Zolotvin."

Petrograd, November 26th.

"Near Prudy Station, north-west of Molodcheno, a German aeroplane was brought down by our machine-gun fire. The occupants, an officer and a private, were taken prisoners."

"On the River Stokhod, near the village of Vulkaporskaia, an enemy aeroplane, which was hit by us near the village of Pojarki, north of Rovice, fell to earth. The wings of the machine were burnt. The aviators were taken prisoners."

"West of Novo-Oleksiniets the enemy is violently bombarding our positions. Enemy aeroplanes also flew over our positions. One of these, being attacked by our aviator, Capt. Vaftalovsky, was hit after a fight lasting a minute, and landed in the region of Rudnaia-Pochaievskaja Station. The machine was undamaged, and found to possess two machine guns. The aviator and observer were taken prisoners."

Italian.

Rome, November 24th.

"Hostile aircraft dropped bombs on Agnede Grigno and Primolano, in the Suagana Valley, wounding two people, but were driven off by our aeroplanes, which rose in pursuit."

Rome, November 26th.

"Hostile aircraft attempted to make raids on several localities in the theatre of operations, but were driven off by fire of our anti-aircraft guns and by our aviators."

"An enemy air squadron, which had succeeded in dropping bombs on Tolmezzo without doing any damage, was attacked and dispersed by aircraft, and an enemy aeroplane was destroyed, one of the aviators being killed and the other taken prisoner. As the result of an air fight near Bilia, south-east of Gorizia, another enemy aeroplane was shot down."

Roumanian.

Bucharest, November 15th.

"During the last two or three days the enemy has again displayed particular activity. Enemy machines have flown over Turna-Magurele, Zimnicea, the region of Giurgiuvo, Tulcea, Campolung, Sinaia, and Roman, and dropped bombs, causing slight damage. They dropped bombs on the capital and its environs, killing and wounding peaceable inhabitants, especially women and children. On this occasion they dropped a great number of bombs over the Palace, where the Queen and the Princesses of Roumania were formerly living."

Fortunately they had left after the death of Prince Mircea. On various occasions, and especially yesterday, enemy aviators flew over small towns and villages, descending very low with their machines, and fired with machine guns on the peaceable population in the streets or working in the fields."

Bucharest, November 21st.

"Yesterday the enemy again displayed aerial activity by bombarding the capital five times, killing and wounding several persons, especially women and children."

Bucharest, November 24th.

"Between Calafat Tjiu we captured an enemy aeroplane."

German.

Berlin, November 15th.

"Balkans.—Bombs have been dropped by our airmen on the fortress of Bucharest."

Berlin, November 16th.

"Thirty-nine Belgians were the victims of an enemy air raid on Ostend."

"During the past few days, as retaliation for dropping of bombs on peaceful villages in Lorraine, Nancy has been shelled from the ground and bombed from the air."

Berlin, November 17th.

"Both during the day and by night aerial activity was lively on both sides."

"At 1 o'clock this afternoon an airman appeared over Munich and dropped seven bombs, causing only slight material damage, and no casualties. The airman disappeared in a westerly direction."

Berlin, November 19th.

"Last Thursday night German naval aeroplanes dropped a number of bombs, mostly of heavy weight, and of a total weight of over 1,400 kilogrammes (about a ton and a-half) with successful results on the town of Furnes (south of Nieuport) and on the flying ground at Coxyde (north of Furnes). At Furnes several conflagrations were observed. One aeroplane, by machine-gun fire, rendered two searchlights unworkable near Coxyde."

Berlin, November 21st.

"Our air squadrons dropped bombs on communication establishments near Bucharest."

Austrian.

Vienna, November 24th.

"Front of Prince Leopold of Bavaria.—One of our airmen, Lieut. Popelak, while on a reconnoitring flight north of Brody, was attacked by three Russian battle-aeroplanes. He forced them to take to flight, and drove them crashing to the ground behind their own lines."

Bulgarian.

Sofia, November 21st.

"Our artillery brought down an enemy aeroplane, which fell in the Vardar Valley. We took prisoners the two occupants."

"On the Aegean Coast there is a lull. Enemy aeroplanes dropped bombs on our positions near Orphano and the bridge near Buk, but obtained no result."

FROM THE BRITISH FLYING GROUNDS. Bournemouth School.

PUPILS rolling alone last week: Messrs. Fisher and Vivian. Straights alone: Messrs. Hall, Peat, Vermorel, Ross and Vivian. Half circuits alone: Mr. Allen. Circuits and eights: Messrs. Burry and Holland.

Instructors: Messrs. E. Brynildsen and H. Smith.

Certificates taken during the week by Messrs. Burry and Holland.

A large crowd, including a great number of soldiers, visited the Bournemouth aerodrome on Wednesday afternoon and witnessed some very fine flights by Mr. Brynildsen, whose well-judged bankings and daring nose-dives with a passenger were most interesting. Later in the afternoon Mr. H. Smith made a couple of very good flights on the 45 Caudron.

Carlstrom Secures the Curtiss Marine Trophy.

At the close of the 1916 competition for the Curtiss Marine Trophy and \$1,000 cash prize on October 31st, the leading performance was that of Victor Carlstrom, and he has now been awarded the prize. The winning flight was made on August 28th, when, on a J.N. twin Curtiss seaplane, Carlstrom flew 614 miles in 8 hrs. 41 mins. over a 51-mile circuit from Newport News to Fisherman's Island, near Cape Charles.

PUBLICATION RECEIVED.

Aircraft. By "An Air-Pilot." London: George Newnes, Ltd. Price, 2s. 6d. net.

SIDE-WINDS.

OVER £1,065 has already been received by the Society of Motor Manufacturers and Traders in connection with the President's appeal for the Union Jack Club. Among the contributions are £50 each from the Austin Motor Co.; Dunlop Rubber Co., Ltd.; Daimler Co., Ltd.; Wolseley Motors, Ltd. £25 each from Brown Brothers, Ltd.; Rudge-Whitworth, Ltd. £5 5s. each R. W. Coan; J. Gliksten and Son, Ltd.; H. M. Hobson, Ltd.; Simms Motor Units, &c.

OIL and grease from aero engines is not easy to remove from the hands with ordinary soap, and a welcome will therefore be extended to "Duco" hand cleaner, a preparation of pumice and soap, which Messrs. Brown Brothers, Great Eastern Street, E.C., are introducing. Not only does it remove grease and oil very quickly and efficaciously, but stains, &c., also disappear by its use, and withal the skin of the hands is not injuriously affected. The "Duco" hand cleaner, which is a British-made composition, is sold at 6½d. per lb., and is put up in a handy tin.

THOSE who are using the American type E.M. Eisemann magneto should note that Mr. Stanley J. Watson, of Berners Works, 37 Sheen Road, Richmond, S.W., has just produced a price list of spare parts. It is illustrated by detailed photographs of the various parts, every one of which is clearly numbered, while the list also gives the correct designation for each individual part. With the aid of the list it should therefore be impossible for any misunderstanding to arise when ordering spare parts, especially if the simple directions set out on the first page are closely followed.

By the time these notes are in print the London Sheet Metal Working and Welding Co., perhaps better known by their euphonious Az-Nu mark, should be completely installed in the new Az-Nu works at 261, Church Road, Mitcham, S.W. They are much larger than the old premises, and altogether better equipped in every way for radiator lamp, tank and welding work, both new and repair, as well as sheet metal work of every sort.

FROM the headquarters of the Shell Marketing Co., Empire House, Kingsway, W.C., comes a booklet which, besides explaining the reason for the temporary withdrawal of Shell No. 1, as recently mentioned in "FLIGHT," sets forth clearly the position with regard to the distribution of Shell and Crown spirit from January 1st next, when it will be entirely in the hands of the Shell Marketing Co., Ltd., the new company established and controlled by the proprietors of Shell spirit. Emphasis is laid on the fact that all purchases of Shell and Crown motor spirit for 1917 can be negotiated only with the Shell Marketing Co., Ltd., and that they alone can supply "Shell" products after December 31st, 1916.

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week.

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